

79 00068

**bart
impact
program**

Land Use and Urban Development Project

STUDY OF WORKERS' LOCATION DECISIONS

*Bay area rap. tran.
Comm. - CA - SF metro area
Job vacancies*



The BART Impact Program is a comprehensive, policy-oriented study and evaluation of the impacts of the San Francisco Bay Area's new rapid transit system (BART).

The program is being conducted by the Metropolitan Transportation Commission, a nine-county regional agency established by state law in 1970.

The program is financed by the U. S. Department of Transportation, the U. S. Department of Housing and Urban Development, and the California Department of Transportation. Management of the Federally funded portion of the program is vested in the U. S. Department of Transportation.

The BART Impact Program covers the entire range of potential rapid transit impacts, including impacts on traffic flow, travel behavior, land use and urban development, the environment, the regional economy, social institutions and life styles, and public policy. The incidence of these impacts on population groups, local areas, and economic sectors will be measured and analyzed. Finally, the findings will be interpreted with regard to their implications for the planning of transportation and urban development in the Bay Area and other metropolitan areas.

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BART IMPACT PROGRAM
LAND USE AND URBAN DEVELOPMENT PROJECT
STUDY OF WORKERS' LOCATION DECISIONS



November 1977

Revised, March 1978

WORKING PAPER

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PREPARED FOR
U.S. DEPARTMENT OF TRANSPORTATION
AND
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT



SAN FRANCISCO BAY REGION

CENTRAL AREA

BART: The Bay Area Rapid Transit System

Length: The 71-mile system includes 20 miles of subway, 24 miles on elevated structures and 27 miles at ground level. The subway sections are in San Francisco, Berkeley, downtown Oakland, the Berkeley Hills Tunnel and the Transbay Tube.

Stations: The 34 stations include 13 elevated, 14 subway and 7 at ground level. They are spaced at an average distance of 2.1 miles: stations in the downtowns are less than one-half mile apart while those in suburban areas are two to four miles apart. Parking lots at 23 stations have a total of 20,200 spaces. There is a fee (25 cents) at only one of the parking lots. BART and local agencies provide bus service to all stations.

Trains: Trains are from 3 to 10 cars long. Each car is 70 feet long and has 72 seats. Top speed in normal operations is 70 mph with an average speed of 36 mph including station stops. All trains stop at all stations on the route.

Automation: Trains are automatically controlled by the central computer at BART headquarters. A train operator on board each train can override automatic controls in an emergency.

Magnetically encoded tickets with values up to \$20 are issued by vending machines. Automated fare gates at each station compute the appropriate fare and deduct it from the ticket value. At least one agent is present at each station to assist patrons.

Fares: Fares range from 25 cents to \$1.45, depending upon trip length. Discount fares are available to the physically handicapped, children 12 and under, and persons 65 and over.

Service: BART serves the counties of Alameda, Contra Costa and San Francisco, which have a combined population of 2.4 million. The system was opened in five stages, from September, 1972, to September, 1974. The last section to open was the Transbay Tube linking Oakland and the East Bay with San Francisco and the West Bay.

Routes are identified by the terminal stations: Daly City in the West Bay, Richmond, Concord and Fremont in the East Bay. Trains operate from 6:00 a.m. to midnight on weekdays, every 12 minutes during the daytime on three routes: Concord-Daly City, Fremont-Daly City, Richmond-Fremont. This results in 6-minute train frequencies in San Francisco, downtown Oakland and the Fremont line where routes converge. In the evening, trains are dispatched every 20 minutes on only the Richmond-Fremont and Concord-Daly City routes. Service is provided on Saturdays from 9 a.m. to midnight at 15-minute intervals. Future service will include a Richmond-Daly City route and Sunday service. Trains will operate every six minutes on all routes during the peak periods of travel.

Patronage: Approximately 142,000 one-way trips are made each day. Approximately 200,000 daily one-way trips are anticipated under full service conditions.

Cost: BART construction and equipment cost \$1.6 billion, financed primarily from local funds: \$942 million from bonds being repaid by the property and sales taxes in three counties, \$176 million from toll revenues of transbay bridges, \$315 million from federal grants and \$186 million from interest earnings and other sources.

March 1978

PREFACE

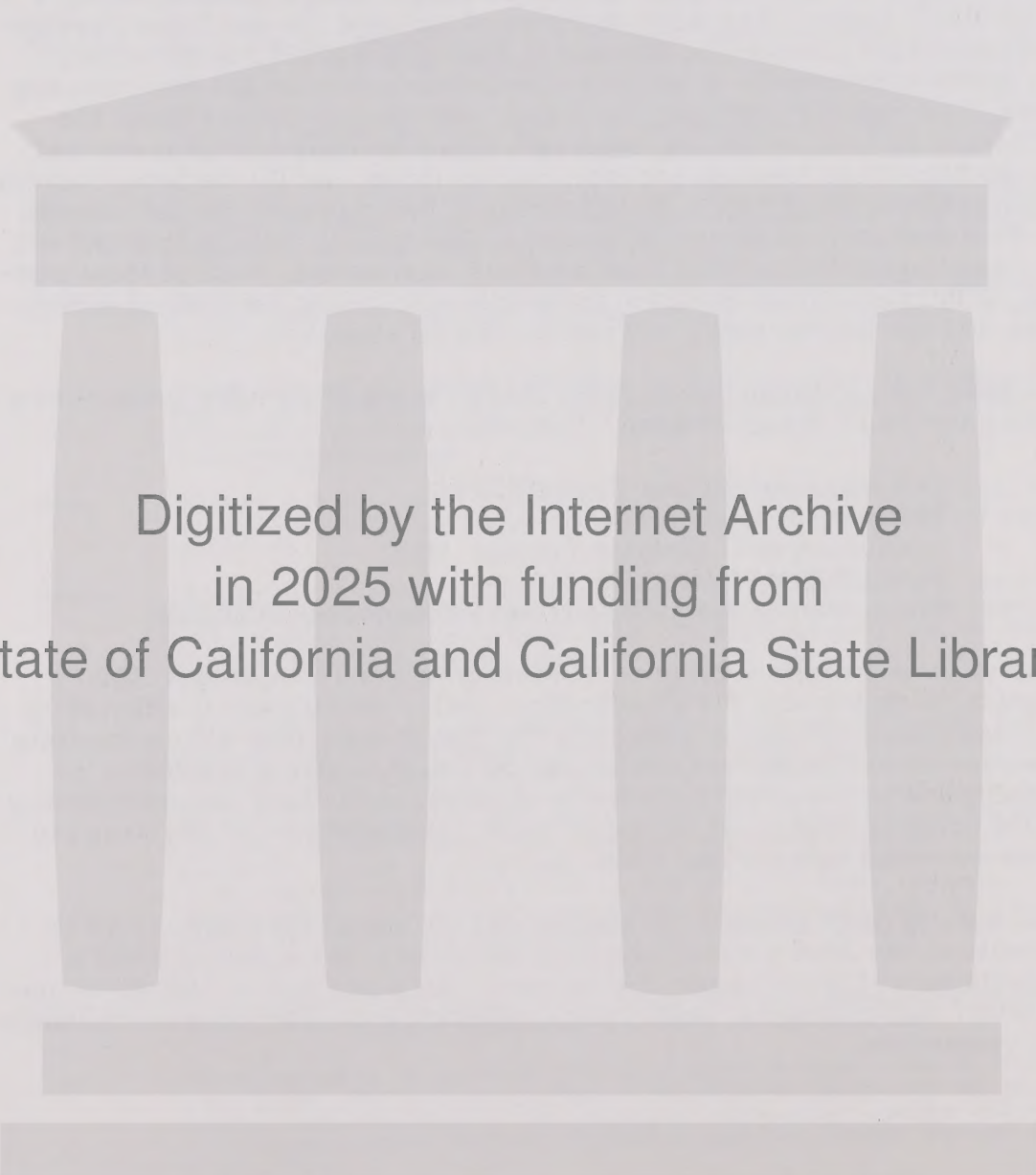
The BART Impact Program (BIP) is a comprehensive policy-oriented effort to identify, describe, measure, and present findings as accurately as possible about the multi-faceted impacts of a major public transportation investment — the BART system. The major objective of the Land Use and Urban Development Project is to determine how and to what extent BART has influenced the spatial arrangements of people and activities within the San Francisco Bay Area. To accomplish this task, the project will focus on the way BART has influenced (1) location decision processes; (2) actual movement behavior that results from those decisions and other market forces; and (3) the form, character, and functioning of aggregate spatial groupings that represent the net outcome of those decisions and movement patterns. Changes attributable to BART will be measured against pre-BART and no-BART alternatives. In all of these studies, BART's effects on individual socio-economic groups, particularly minorities and the disadvantaged, will receive careful attention.

The Land Use and Urban Development Project is one of six major projects comprising the BART Impact Program. The others are:

- Economics and Finance Project (E&F)
- Environment Project (Env)
- Institutions and Lifestyles Project (ILS)
- Public Policy Project (PP)
- Transportation System and Travel Behavior Project (TSTB)

Each of these projects is designed to investigate specific aspects of BART's impacts, to explain why the impacts occur, and to identify who is affected by the impacts and the distributional effects. The projects then will demonstrate how the information derived can be used by decision-makers to enhance the benefits and to reduce the dis-benefits of BART, and to increase understanding of the potential impacts of rail rapid transit investments in the Bay Area and other American metropolitan areas.

This working paper presents the analysis and findings of the study of BART's impacts on Bay Area workers' locational decisions — one aspect of BART's impacts on land use and urban development. The paper is presented for review by BART Impact Program staff, federal sponsors, and other interested planners and researchers.



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SUMMARY

OBJECTIVES

The objectives of the study of workers' location decisions, Work Element 4 of the Land Use and Urban Development Project, were: (1) to determine BART's effects on workers' decisions about job location; (2) to determine whether BART affects work location decisions of specific socio-economic groups, particularly minorities, differently; and (3) to examine the relationship between job location and residence location decisions.

This work element was designed to complement the parallel studies of households' location decisions (Work Element 3), employers' location decisions (Work Element 8), retail sales and service (Work Element 9), and development patterns (Work Element 7), building on the accessibility mapping effort (Work Element 2).

METHODOLOGY

Eight research hypotheses were formulated based on previous research on location decisions and the role of transportation in the job search process, and prior expectations about BART's impacts. Then a two-stage survey was conducted to obtain a sample of workers (in downtown San Francisco, downtown Oakland, and other East Bay workplaces, including an East Oakland industrial area), who recently had changed jobs. First, using an intercept interview, a pool of potential respondents fulfilling prescribed selection criteria was drawn for later telephone interviewing. The final sample was stratified to include workers who had changed employers within the past three years (job changers), whose employers had moved (location changers), or who had obtained their first job. Further, it was stratified to include 50 percent BART riders, rather than 25 percent — the proportion of BART riders found in the initial pool of qualified respondents. Thus the survey does not represent the population of workers at large. However, because the socio-economic profile of the BART commuters rather closely matches that of others surveyed, the sample may be considered representative of the population of downtown San Francisco and Oakland workers changing jobs or job locations.

FINDINGS

All told, 314 telephone interviews were completed covering job selection criteria, the relative importance of location and BART accessibility in job choice, current and prior commuting patterns, use of BART for interview trips, workplace and residence location, and socio-economic characteristics of respondents. The survey data were analyzed statistically to test the research hypotheses. Early in the study two of the original eight hypotheses were found untestable; the findings summarized in the following sections address the remaining hypotheses.

Impacts on Job Location Decisions

Typically job location is a secondary rather than primary factor in job choice — job-related and personal considerations are far more important. However, the desirability of a specific job location often is a function of BART accessibility. Among workers surveyed, at least one in four gave some consideration to proximity to BART in choosing a job or looked for a job with the expectation of commuting by BART. Further, approximately one in three of those surveyed used BART at least once for job interview trips.

In both job search and job location decisions BART appealed not only to those who used to commute by BART, but also to bus riders and workers who commuted by car, indicating that this impact is not limited solely to the transit-dependent or the typical transit user. However, those who used to commute by transit valued proximity to BART much more highly than those who did not, suggesting that transit use can condition future location decisions.

Those most interested in proximity to BART were downtown San Francisco workers commuting from the East Bay. In fact, this group viewed BART as an important factor in job location decisions twice as frequently as San Francisco workers living in the City itself or northern San Mateo County (57 percent versus 27 percent). The large number of jobs in downtown San Francisco close to BART, Bay Bridge congestion, and high parking charges cause East Bay residents employed in San Francisco to have a high propensity to use transit, which explains BART's influence on their job location decisions. By contrast, people living and working in San Francisco have a transit orientation, but are not as influenced by BART because the San Francisco Municipal Railway (Muni) provides most of the service.

In sum, BART did not constrain job location decisions and rarely dictated job choice, but it was an amenity that often entered into the decision-making process. As was expected, those most sensitive to BART's advantages were the long distance commuters. Those specifically influenced by BART are described in greater detail in the following section.

Impacts on Residence Location Decisions

Reasons given for changes in residential location centered on housing needs (e.g., a change in family composition, wanted larger space, wanted own place). Transportation rarely was cited, and references to BART were negligible. In contrast, when asked whether BART was a major consideration, a minor consideration, or not a consideration in the decision on where to move, approximately 20 percent of the survey respondents mentioned BART as a major consideration, and another 20 percent stated that BART was a minor consideration. Among respondents viewing BART as a major factor in their residential location decisions, 62 percent also indicated that BART was important in job location decisions; among respondents uninfluenced by BART in their residential location decisions, only 36 percent also viewed BART as important in job location decisions. Thus BART accessibility is important in some residential location decisions, but the numbers are not overwhelming.

Who is Influenced by BART?

Having examined the effects of BART on job location decisions of all workers, the next step was to determine whether BART affects job locations of specific socio-economic groups differently, particularly minorities. These analyses compared socio-economic characteristics of respondents influenced by BART in their workplace location decisions with those who were not. Four variables — occupation, marital status, household size, and age — when cross-tabulated with other responses indicated that BART affects specific segments of the population differently. However, only occupation, age, and change in marital status were found to be significant factors; income, principal versus secondary wage earner, household size, education, sex, and minority status did not explain differences in BART's influence. Specific findings are described below.

1. Some types of white collar workers (e.g., clerical workers) are more clearly influenced than other types of white collar workers (e.g., professional and technical workers); similar variations occur among blue collar workers. Both low income and concentration of jobs around downtown stations for those most influenced by BART may explain this relationship.
2. Those under 30 years of age are almost twice as likely to be interested in BART as older workers — an expected difference given that these persons are new to the labor force and many do not yet have incomes that would allow them to drive.
3. Respondents who had a change in marital status during the past year were three times more likely to view BART as a major factor in their job choice than those having had no change (53 percent vs. 17 percent). Formation of a household may bring a change in the length of the journey to work, in the availability of an automobile, or in the desire to have alternative transportation modes available. Change in marital status may correlate with importance of job access by BART because accompanying recent or planned changes in job or residential location have caused those respondents to evaluate transportation options.
4. Those living within 20 minutes' walking distance of BART were no more interested in proximity to BART as a factor in job location decisions than those within 10 minutes' driving distance. But both these groups were much more interested in BART than respondents living further away for whom BART offers no commute benefits.

In the sample, minority BART ridership was disproportionately low; minorities constituted 28 percent of the survey respondents, but only 23 percent of those commuting to work by BART — a finding similar to the 1976 BART Passenger Profile Survey. BART ridership was greater among men than women (47 percent vs. 40 percent). However, both minorities and women expressed greater interest in BART as a factor in job choice than white males, but the difference was not statistically significant.

NO-BART ALTERNATIVE

In terms of the No-BART Alternative -- the Metropolitan Transportation Commission-defined regional bus transit system that might have existed in the absence of BART -- BART's effect on job location decisions may be greater because of its appeal to the non-transit rider -- the "hedger" interested in the option to commute by BART who does not ride BART now. Further, to the extent that BART increases capacity in the Bay Bridge corridor more than the NBA, it will have a greater influence on downtown San Francisco location decisions over time than the NBA because the Transbay commuters, both BART riders and non-riders, are most sensitive to the advantages BART offers. Outside San Francisco, differences between BART's long-range effects on workers' location decisions and the NBA's may not be apparent until highway congestion and parking prices increase. Even then, the NBA may have been able to accommodate the same ridership as BART, but because BART is a highly visible, well-publicized transportation improvement it should have a greater impact on workers' location decisions than the NBA. BART's amenities, such as direct entrances from offices in downtown San Francisco and the Oakland City Center to the BART system are unquantifiable factors that distinguish it from the NBA.

POLICY IMPLICATIONS

A better understanding of how BART, and possibly rail transit anywhere, affects workers' location decisions can aid in formulating land use and urban development policy. The findings of this survey suggest the following policy implications. These will be correlated with the findings of the study of employers' location decisions (Work Element 8) in formulating recommendations to be included in the final report.

First, because BART is recognized as an amenity by office workers and sales workers, it provides support for continued centralization of office space and the retail core. BART has some effect on employment opportunities to the extent that some workers sought employment in specific areas only because of BART access. Over time this might make the labor market somewhat more competitive as workers' mobility is increased. (Whether these advantages are perceived by employers is being addressed in Work Element 8.)

Second, because BART is affecting the location decisions of both riders and non-riders alike, the long-term prospects for increased patronage from downtown workers are greater than extrapolation of trends based on ridership surveys might suggest. Further, if housing developments within station areas are encouraged, particularly mixed developments offering homeownership opportunities, and also within catchment areas served by feeder buses or accessible by car, then BART's effects on workers' location decisions and commuting patterns will be even greater as the journey to work remains an important determinant of workplace location choice.

Third, the importance of service levels and door-to-door travel times should not be underestimated. Among workers surveyed the most frequently mentioned reasons for not using BART were that the system was inaccessible from home and that the service was poor. With extensive neighborhood feeder service, good train schedules, and minimum transfers, BART's potential for affecting location decisions will be greater than it is today, but even then it is unlikely to be a major determinant of job choice.

1. INTRODUCTION

Clearly the manner in which regional transit systems influence job location decisions can have a significant impact on urban development patterns. Accordingly, Work Element 4 of the Land Use and Urban Development (LU&UD) Project was designed to investigate the various factors that determine an individual's choice of job location, with specific attention to the relative importance of transit access and BART in that decision. The objectives of Work Element 4 were:

1. To determine BART's effect on job location decisions;
2. To determine whether BART affects specific socio-economic groups, particularly minorities, differently; and
3. To examine the relationship between job location and residential location decisions.

Though all 18 LU&UD Project work elements are closely related, Work Element 4 particularly complements Work Element 3, the study of households' locational decisions¹. Both surveys address three types of BART impacts: impacts on a household's moving decision; impacts on a household's residence location choice; and impacts on job location. Substantial research has been conducted on the linkages between job location decisions and residential location decisions by Alonso, Kain, Brown, and others (see Bibliography). The Work Element 4 findings reported here ultimately will be combined with the analysis of the results of Work Element 3 surveys in the project final report and the interrelationships between the two survey efforts clearly delineated.

The first of three following chapters describes the research questions and research methodology that guided Work Element 4 analysis. The second chapter presents the findings, both in terms of specific research questions and in terms of a general perspective on factors important in job location decisions. The final chapter presents overall conclusions together with implications for future public actions.

1. John Blayney Associates/David M. Dornbusch & Co., Inc., Study of Households' Location Decisions (Berkeley: BART Impact Program, Land Use and Urban Development Project working paper, November 1977).

2. RESEARCH QUESTIONS AND STUDY DESIGN

Six hypotheses about workers' location decisions were formulated for testing in Work Element 4. The objective was to include all facets of the job search process that conceivably could have been affected by BART within the context of the prescribed research questions.

1. BART accessibility is important in job location decisions.
2. BART facilitates job search.
3. BART has a greater effect on white collar workers' job location decisions than those of blue collar workers.
4. BART's influence is unrelated to prior transit use.
5. BART's accessibility is important in residential location decisions.
6. The closer people live to BART, the greater is BART's influence on job location decisions.

The Study Design also included two hypotheses about BART's effects on interfirm travel and shopping opportunities and BART's advertising impacts, but because of time and budgetary constraints, questions on these subjects could not be included in the survey. However, potential impacts on interfirm travel are being addressed in the study of employers' location decisions (Work Element 8), while BART's effects on shopping patterns are being examined in the study of retail sales (Work Element 9). The issue of BART's advertising impacts was judged to be the least important of the possible influences BART might have had on location decisions, and thus this hypothesis was dropped when the interview questionnaire length had to be reduced.

To test these hypotheses, two surveys were employed — a Workplace Location Survey conducted by Tyler Research Associates (TRA), and a Workplace Survey conducted by the Metropolitan Transportation Commission (MTC). The findings of BART's impacts on workers' location decisions have been derived primarily from statistical analyses of the results of the two surveys. The methodology employed in each survey is described in the following sections.

WORKPLACE LOCATION SURVEY (TRA)

A two step survey method was employed in downtown San Francisco, downtown Oakland, and an Oakland industrial area. First, workers in San Francisco and Oakland were interviewed at 16 high pedestrian traffic locations, including entrances to major office buildings. Using an intercept questionnaire, the interviewees were screened as described below to produce a weighted sample of approximately 300 workers with recent job location changes (divided equally between East Bay and West Bay workplace locations, BART riders and non-BART

riders) for subsequent, much more detailed telephone interviews. The screening interviews began on July 19, 1977 and concluded on July 29, 1977; the telephone interviewing began on July 26, 1977 and concluded on August 8, 1977. Table 1 provides information on the results of the intercept and telephone interviewing; Figure 1 the intercept locations. Overall, refusal and non-completion rates for the intercept interviewing and telephone interviewing were low, ranging from 12-25 percent.

In order to ensure representation of all types of job location changes, the final sample of interviewees was selected on the basis of six questions focusing on job changes within the past three years. Additionally, half of the panelists were to be BART commuters while the other half were to be non-BART commuters. Table 2 presents a profile of the 314 respondents in terms of the selection criteria.

Appendix A contains copies of the screening questionnaire and telephone questionnaire, annotated to show the individual responses to each question. The screening questionnaire established a respondent's workplace location, residence location, length of time at job location, length of time at residence, access mode to work, ethnic identity, sex, and willingness to respond to the telephone questionnaire. The telephone questionnaire included 50 questions focusing on: reasons for job choice; importance of location in job choice; importance of transit and particularly BART in job choice; mode of transportation used for access to job interviews; previous job location; proximity of transit to the respondent's home and place of employment; ease of transit use; reasons for not riding BART; previous residence location; reasons for choosing new residence; importance of BART in residence location decisions; and socio-economic characteristics of the respondents (e.g., marital status, age, income, occupation, education).

Each survey question applied directly to the testing of one or more of the hypotheses. Table 3 illustrates the relationship between the questions and the hypotheses. As an example, Hypothesis 1 posits that BART accessibility is important in job location decisions. Question 7 of the telephone questionnaire asks, "Was the job being near a BART station a major consideration, a minor consideration, or not a consideration at all in your decision to take your present job?" Table footnotes show which questions provided the response data, with screening interview questions prefaced by SQ and telephone interview questions by TQ. The distribution of responses to each question were tabulated by computer; cross-tabulations were obtained by using the Statistical Package for the Social Sciences (SPSS) program. In the tables presented in this report the significance level only is indicated for those statistics that are significant at the 95 percent confidence level or higher, as indicated by the Chi-square test.²

2. All Chi-square tests of significance compared the observed distribution of survey responses to a random distribution of responses. Another way to test for statistical significance is to compare the observed distribution to an expected distribution (derived from one or more theories on workers' locational decisions). Unfortunately, previous research does not provide an adequate foundation for postulating the distribution of responses to specific Work Element 4 survey questions.

TABLE 1. RESULTS OF INTERCEPT AND TELEPHONE INTERVIEWS

	<u>Number</u>	<u>Percent</u>
Initial intercept interviews	3,485	100.0
Did not meet sample requirements		
-No permanent job	738	21.2
-Did not live or work in BART service area	628	18.0
-Had not changed job location	897	25.7
Refused further participation; terminated interview	403	11.6
Sample for telephone interviewing	819	100.0
-BART users	200	24.0
-Others	619	76.0
Completed interview	314	100.0
-BART users	150	47.8
-Others ^a	164	52.2

- a. Because interviewing terminated when the quota of 150 completed BART rider interviews was reached, approximately 50 percent of the non-BART riders who qualified for the sample were not interviewed. For both samples, the completion rate for interviews attempted was about the same - 75 percent.

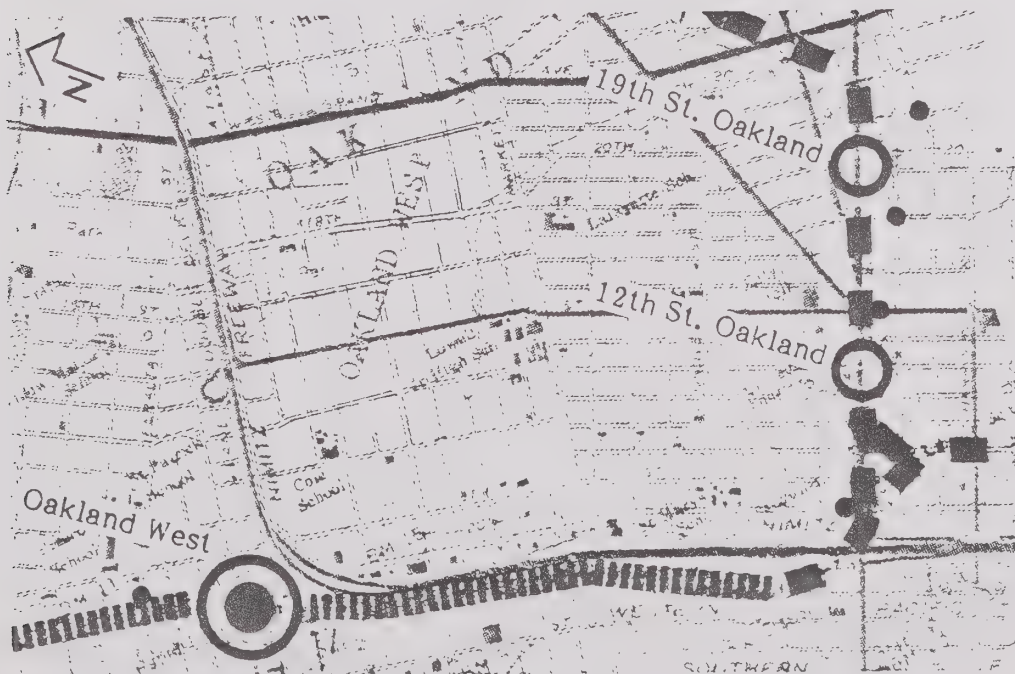
Source: Tyler Research Associates

FIGURE 1. TRA WORKPLACE LOCATION SURVEY INTERCEPT SITES

San Francisco Intercept Screening Locations



Oakland Intercept Screening Locations*



*Two locations (Fruitvale at 14th and Telegraph at 40th) were dropped after one day of intercept interviewing due to inadequate foot traffic.

Source: John Blayney Associates, Tyler Research Associates

TABLE 2. PROFILE OF RESPONDENTS IN TERMS OF SAMPLE SELECTION CRITERIA
(Percent Distribution)

<u>Job Location Change</u>	<u>BART Commuters</u>	<u>Others</u>
Changed employers in past year	40.7	45.7
Changed employers in the past three years	45.3	43.3
Employer moved or changed job location to a different building in the past year	10.0	12.2
Employer moved or changed job location to a different building in the past three years	8.7	9.7
Obtained first job in the past year	12.0	6.7
Obtained first job in the past three years	<u>8.7</u>	<u>11.0</u>
	100.0	100.0
Total Respondents	150	164

Source: Tyler Research Associates

TABLE 3. RELATIONSHIP BETWEEN RESEARCH HYPOTHESES AND WORK ELEMENT 4 QUESTIONNAIRE SUBJECT AREAS

<u>Research Hypotheses</u>						
Illustrative Survey Variables (Numbers refer to telephone questionnaire)	BART accessibility is important in job location decisions.	BART facilitates job search.	BART has a greater effect on white collar workers' job location decisions than those of blue collar workers.	BART's influence on prior transit use.	BART's influence is unrelated in residential location decisions.	The closer people live to BART the greater BART's influence on job location decisions.
	Factors influencing job selection decisions (2)	●				●
	Importance of location (3, 4)	●		●		●
	Importance of access to public transportation & BART (5-9)	●		●		●
	Transportation used in job search (10)		●			
	Transportation to prior job (12)				●	
	Reasons for present mode and alternate mode (31-32)	●		●		
	Reasons for not using BART (33)	●		●		
	Factors influencing residential location decisions (34-37)					●
	BART's importance in the residential location decision (38)					●

Profile of Workers Surveyed

In the San Francisco sample the typical worker changing jobs or job locations was a 30 year old white college graduate who previously had worked in the BART service area. Sixty percent of those interviewed were male; 1976 median household income was \$13,700. Overall, half of those interviewed were primary wage earners, and another 25 percent considered themselves "equal" wage earners — neither primary nor secondary. In terms of marital status, 42 percent were married; 20 percent were living with another person(s); 20 percent were living alone; 9 percent were single parents; and the balance, other types of households. Two out of three households were renters. By contrast, the typical East Bay worker was slightly older — 32 years of age — and had a trade school or some college education. Forty-nine percent were male; 1976 median income was \$10,800. About two-thirds of those surveyed worked in downtown Oakland; the remainder were employed elsewhere in Oakland and Berkeley. A greater proportion of minorities were interviewed in the East Bay sample than the San Francisco sample (37 percent vs. 20 percent), and close to half of these were black. Finally, almost all those interviewed (94 percent) had regular access to an automobile, truck or motorbike. For these characteristics, differences between the San Francisco and East Bay workers were not found to be significant.

Close to 60 percent of the respondents who had changed employers, not just job locations, used to work in the BART service area. Among those now working in San Francisco, 18 percent immigrated from outside California. By contrast, immigrants in the Oakland sample represented 12.5 percent of the total. A greater proportion of entrants into the labor force were found among the East Bay workers than among the San Francisco workers. These differences are shown in Table 4.

TABLE 4. FOR JOB CHANGERS SURVEYED, LOCATION OF PREVIOUS JOB,
BY CURRENT WORKPLACE^a
(Percent Distribution)

<u>Prior Workplace</u>	<u>Current Workplace</u>	
	<u>San Francisco</u>	<u>East Bay</u>
No previous permanent job	12.5	17.2
In BART service area	58.4	63.2
Outside service area, but in California	11.1	17.1
Outside California	<u>18.0</u>	<u>12.5</u>
	100.0	100.0
Total respondents	144	128
(Non-responses)	(1)	(3)

a. Cross-tabulation of responses to TQ 11 by SQ2.

Source: John Blayney Associates, Tyler Research Associates

The occupational profile of workers surveyed resembles the distribution of job opportunities by occupation estimated by the State Employment Development Department for the San Francisco-Oakland SMSA (see Table 5), suggesting that the survey sample represents the universe of downtown workers changing jobs or entering the labor force. The principal differences between the SMSA profile and the workers surveyed — over-representation of white collar workers — may be attributed to the concentration of such employment opportunities in the central business districts of San Francisco and Oakland where most of the initial intercept interviewing was conducted. This issue is addressed in the following section on the Workplace Survey in which the socio-economic characteristics of the TRA survey respondents are compared with those of all downtown workers.

In Table 6 BART commuters and other workers surveyed, and minority and non-minority respondents, are compared in terms of age, education, annual household income, and occupation. For the most part the BART riders resemble those using other modes of transportation — the differences are not pronounced. In relation to the white respondents, the minorities surveyed tended to be somewhat younger, and fewer were college graduates. While the income distribution was not significantly different, a greater proportion of the minority respondents worked in clerical and service occupations (54 percent vs. 32 percent).

WORKPLACE SURVEY (MTC)

The MTC Workplace Survey was conducted in connection with the Transportation System and Travel Behavior (TSTB) Project of the BART Impact Program. It focused largely on relationships among travel mode choices of Bay Area workers and workplace location, residence location, and various socio-economic characteristics. The survey did, however, also ask a question on reason for job choice to provide information on workers' location decisions for the LU&UD Project.

The Workplace Survey, conducted in the summer of 1977, focused on all persons employed within 10 minutes walking distance of a BART station. The survey employed a random sampling procedure — employees located on every third floor of every ninth block within the survey area. The estimated number of potential respondents was 10,000; the final sample was just under 8,400.³

Appendix A contains a copy of the MTC Workplace Survey. The questions of greatest relevance to Work Element 4 were those addressing workplace, residence, principal access mode to work, principal reason for job choice, household size, employed persons per household, household income, household tenure, occupation, sex, age, and ethnic background of the respondent. The distribution of responses for individual variables first were tabulated, then cross-tabulations specifically geared to the hypotheses under study were conducted on key sets of variables. Statistical significance again was determined via the Chi-square test.

3. Peat, Marwick, Mitchell & Co., Analysis of 1977 Workplace Survey (Berkeley: BART Impact Program, Transportation System and Travel Behavior Project working note, December 1977).

TABLE 5. COMPARISON OF ANNUAL JOB OPENINGS BY OCCUPATION IN THE SAN FRANCISCO-OAKLAND SMSA AND THE OCCUPATION OF THE WORKERS SURVEYED^a

<u>Occupation</u>	<u>San Francisco-Oakland SMSA</u>		<u>Job Changers Profile; Work- place Location Survey (Percent)</u>
	<u>Estimated Average Annual Job Openings</u>	<u>Percent of Total</u>	
Professional, technical, and similar workers	15,082	18.7	32.8
Proprietors, managers, and officials	8,489	10.5	14.0
Sales workers	7,269	9.0	6.1
Clerical and related workers	25,721	31.9	30.6
Craftsmen, foremen, and related workers	5,482	6.8	4.1
Operatives and related workers	5,078	6.3	2.5
Service workers, except private household workers	11,163	13.9	7.6
Laborers	1,616	2.0	1.6
Private household workers	<u>654</u>	<u>0.8</u>	<u>-</u>
	80,554	100.0	100.0

a. Single variable distribution of responses to TQ 48. Average annual job openings computed on the basis of 1975-80 replacement needs and net demand from changes in industry employment levels estimated by the State Employment Development Department.

Source: California Employment Development Department, Annual Planning Report, May, 1977; John Blayney Associates, Tyler Research Associates

TABLE 6. COMPARISON OF THE SOCIO-ECONOMIC CHARACTERISTICS OF BART COMMUTERS VS. NON-BART COMMUTERS SURVEYED AND WHITE VS. MINORITY WORKERS SURVEYED^a
(Percent Distribution)

<u>Age</u>	<u>Total Respondents</u>	<u>Current Mode</u>		<u>White</u>	<u>Minority</u>
		<u>Bart</u>	<u>Other</u>		
Under 25	102	35.3	29.8	27.4	44.9
25 to 34	138	42.7	45.1	47.8	33.3
35 to 44	38	10.7	13.4	11.5	15.4
Over 44	35	11.3	11.7	12.9	6.4
Non-response	1	0.7	-	0.4	-
		100.0	100.0	100.0	100.0
<u>Education</u>					
High School Graduate or Less	51	15.9	16.5	11.9	25.6
Trade School or 1-3 Years College	125	44.0	36.0	38.1	43.6
College Graduate or Higher	138	40.1	47.5	50.0	30.8
		100.0	100.0	100.0	100.0
<u>Annual Household Income, 1976</u>					
Less than \$7,000	79	19.4	30.5	22.5	24.4
\$7,000 to \$15,000	89	32.6	26.4	26.1	19.2
\$15,000 to \$25,000	77	25.3	23.7	27.8	27.0
Over \$25,000	33	11.3	9.7	16.0	17.9
Non-response	36	11.3	11.6	7.5	11.5
		100.0	100.0	100.0	100.0
<u>Occupation</u>					
Professional, Technical	103	29.3	36.0	35.8	21.8
Proprietors, Managers	44	18.7	9.8	15.5	11.5
Sales Workers	21	6.7	5.5	6.6	5.1
Clerical	96	29.3	31.7	26.5	43.6
Craftsmen, Foremen	13	5.3	3.0	4.9	2.6
Operatives	8	2.0	3.0	2.7	2.6
Service Workers	24	6.0	9.1	6.2	10.3
Laborers	5	2.0	1.2	1.3	1.3
Non-response	2	0.7	0.6	0.4	1.3
		100.0	100.0	100.0	100.0
Total Respondents		150	164	226	88

a. Cross-tabulation of responses to SQ 6, SQ 7, TQ 46a, and TQ 48 by SQ 5 and SQ 6.

Most of the analyses using MTC Workplace Survey data concentrated on the relationships between reasons for job choice versus all other variables. For example, is proximity to public transit a more important factor in job choice for BART commuters or for non-BART commuters? Do persons residing in communities where BART has provided the greatest improvement in accessibility to the remainder of the Bay Area more frequently cite proximity to public transportation as a factor in job choice than persons residing in communities not substantially affected by BART? Findings bearing on the hypotheses are presented in the next chapter.

Because of the limited number of questions related to Work Element 4 in the MTC survey, the MTC survey was not as heavily relied upon as the TRA survey in analyzing BART's impacts on workers' location decisions. However, the MTC survey remains a worthwhile standard of comparison because of its much greater sample size. Further, it included all workers, not just those recently changing job locations or entering the labor force. Table 7 shows the socioeconomic differences between the job changers and location changers surveyed by TRA and all downtown Oakland and San Francisco workers.

The apparent under-representation of clerical and service workers and over-representation of professional and technical workers in the TRA survey may be due in part to technical differences in sampling procedures and in part to differences between the two populations being surveyed. In the MTC survey self-administered questionnaires were used and the response rate was 58 percent, suggesting the possibility of some unknown sample bias. The two stage interviewing technique used in the TRA survey minimized respondents' opportunities to decide whether or not to participate in the survey and, as a consequence, completion rates were somewhat higher but still not sufficient to eliminate sample bias. More importantly, though, are the different orientations of the two surveys. The TRA survey focused solely on workers who recently changed job locations, or entered the labor force, while the MTC survey covered a sample of workplaces throughout the three counties which are readily accessible by BART. In any given area the profile of workers changing jobs or job locations may not be the same as all workers because of differences in job turnover rates and new employment opportunities in specific industries and occupations.

TABLE 7. COMPARISON OF SOCIO-ECONOMIC CHARACTERISTICS OF WORKERS CHANGING JOBS
(TRA SURVEY) AND ALL DOWNTOWN WORKERS (MTC SURVEY)^a
(Percent Distribution)

	San Francisco CBD		Oakland CBD ^b	
	Workplace Location Survey (TRA)	Workplace Location Survey (MTC)	Workplace Location Survey (TRA)	Workplace Location Survey (MTC)
<u>Age</u>				
Under 25	26.7	16.5	39.5	14.2
25 to 34	48.3	36.0	38.7	30.7
35 to 44	13.4	18.5	10.5	17.7
Over 44	11.0	29.0	11.3	37.4
Non-response	0.6	-	-	-
	100.0	100.0	100.0	100.0
<u>Education</u>				
Less than High School Graduate	2.4	6.5	7.7	4.0
High School Graduate	8.1	32.9	15.5	24.7
Trade School or 1-3 Years College	37.8	31.8	42.2	34.6
College Graduate or Higher	51.7	28.8	34.5	36.7
	100.0	100.0	100.0	100.0
<u>Occupation</u>				
Professional, Technical	33.7	14.0	31.7	19.3
Proprietors, Managers	18.0	15.3	9.2	19.2
Sales Workers	6.4	4.8	5.6	8.2
Clerical	30.8	45.9	30.3	40.6
Craftsmen, Foremen	4.1	4.5	4.2	3.2
Operatives	1.7	2.6	3.5	3.5
Service Workers	4.7	10.0	11.3	3.6
Laborers	0.6	1.6	2.8	1.7
Other	-	1.3	-	0.7
Non-response	-	-	1.4	-
	100.0	100.0	100.0	100.0
<u>Ethnicity</u>				
White	79.7	55.2	62.7	69.4
Spanish American/Spanish Heritage	4.1	8.5	8.5	14.7
Black	8.1	8.0	17.6	4.1
Asian	5.8	26.1	7.0	9.3
American Indian	0.6	1.6	2.1	1.7
Other	1.7	0.6	2.1	0.8
	100.0	100.0	100.0	100.0
Total Respondents	172	-	142	-
Sample Population Represented	-	177,690	-	62,135

a. For TRA Survey, cross-tabulation of responses to SQ 6, TQ 47, TQ 48 and TQ 49 by SQ 2; MTC cross-tabulations from TSTB Project, December 1977, working note, Analysis of Workplace Survey, pp 41-44.

b. TRA Survey includes East Bay workers not employed in downtown Oakland (36 percent of the total Oakland sample) and San Francisco workers not employed in downtown San Francisco (12 percent of the San Francisco sample).

Source: John Blayney Associates, Tyler Research Associates, Metropolitan Transportation Commission

3. FACTORS AFFECTING WORKERS' LOCATION DECISIONS

The Work Element 4 survey was designed to elicit information about job location decisions prior to addressing the role of BART in the decision-making process. Respondents changing employers or beginning to work for the first time first were asked to indicate why they accepted their present job and how important the specific location was in their decision. Those considering location as a decision-making factor then were asked a series of questions about the relative importance of various location attributes, including transportation access and specifically BART. Only at the conclusion of this sequence was BART mentioned to avoid biasing the respondents. The interviewers began with an open-ended question and probed for additional reasons either for accepting a job or considering location important. Then the respondents were asked to indicate which one of the reasons were most important.

For the respondents changing job locations, but not employers, a different sequence of questions was formulated to address the possibility that they might have considered looking for a new job and to explore the relative importance of BART in their decision-making. However, only 7 of the 57 "location changers" thought of looking for another job because of the change -- hardly a sufficient sample for analysis.

The following sections describe the factors affecting job location decisions; Tables 8 and 9 summarize the responses to the open-ended questions.

REASONS FOR CHOOSING A NEW JOB

Overall job-related reasons dictated the decisions to accept a job more than any other factor, with better pay, better benefits, better job, and interesting work being mentioned most frequently in the TRA survey. Most people interviewed had a choice of jobs and/or job locations; only 18 percent stated that it was the only job offered or available. BART riders had a greater degree of choice than other workers surveyed (see Table 8) probably because more than half of them were college graduates.

Transportation-related reasons were mentioned by 17 percent of the respondents. However, as a proportion of the total number of reasons given, factors such as a shorter, easier or cheaper commute or access to public transportation and BART were relatively unimportant. Eleven percent of the BART commuters volunteered access to BART as a reason for accepting their present job, but this only represented 4.4 percent of the total number of reasons mentioned. Other reasons affecting job location decisions included proximity to family and friends (mentioned by 16 percent of the respondents), an attractive location (11 percent), a Bay Area location (7 percent), and transferred (5 percent). Differences between BART commuters and others surveyed and between San Francisco workers and Oakland workers surveyed are shown in Table 8.

TABLE 8. COMPARISON OF REASONS FOR CHOOSING A NEW JOB
BART COMMUTERS VS. OTHERS AND SAN FRANCISCO VS. OAKLAND WORKERS SURVEYED
(Percent Distribution)

	All Reasons				Most Important Reason			
	BART Commuters	Others	San Francisco Workers	Oakland Workers	BART Commuters	Others	San Francisco Workers	Oakland Workers
<u>Job-Related Reasons</u>								
Only or first job available	9.1	17.2	12.1	16.7	12.2	23.5	15.9	20.6
Better salary; good benefits	24.1	22.4	22.1	24.7	23.0	26.9	24.1	26.0
Career advancement	27.2	23.6	28.8	20.7	37.4	19.4	35.2	19.8
Attractive working conditions	9.4	12.9	12.1	9.8	7.7	15.8	11.1	13.0
<u>Transportation-Related Reasons</u>								
Short, easy or inexpensive commute	2.2	3.4	1.6	4.4	1.6	1.4	-	3.1
Could use public transportation	2.5	4.0	3.2	3.3	0.8	0.7	0.7	0.8
Could use BART	4.4	0.6	1.9	3.3	2.3	0.7	0.7	2.3
<u>Other Reasons</u>								
Near friends or family	7.5	6.4	7.0	6.9	6.9	1.4	4.1	3.8
Liked location	5.3	4.3	5.1	4.4	1.5	2.1	2.1	1.5
California or Bay Area location	4.4	3.1	4.0	3.3	3.8	3.5	3.4	3.9
Other	2.2	2.1	1.9	2.5	3.1	4.8	2.8	5.3
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Responses	320	326	371	275	131	145	145	131

Source: John Blayney Associates, Tyler Research Associates

TABLE 9. IMPORTANCE OF LOCATION IN JOB CHOICE
BART COMMUTERS VS. OTHERS AND SAN FRANCISCO VS. OAKLAND WORKERS SURVEYED^a
(Percent Distribution)

<u>Job Location</u>	<u>All Reasons</u>				<u>Most Important Reason</u>			
	<u>BART Commuters</u>	<u>Others</u>	<u>San Francisco Workers</u>	<u>Oakland Workers</u>	<u>BART Commuters</u>	<u>Others</u>	<u>San Francisco Workers</u>	<u>Oakland Workers</u>
California or Bay Area	14.8	7.9	13.9	7.9	21.6	9.1	18.1	10.2
Close to home	5.8	13.7	6.1	14.5	3.4	13.6	4.7	14.0
Downtown location	11.7	11.4	17.8	3.9	9.1	10.0	16.2	2.1
Other	4.6	6.2	4.9	5.9	3.4	5.4	3.7	5.3
<u>Transportation</u>								
Accessible by BART	22.6	6.2	12.7	15.2	28.4	3.3	12.4	17.2
Accessible by transit	14.2	27.3	20.5	21.9	10.2	32.7	21.9	23.7
Easier, cheaper commutes	10.3	9.0	7.8	11.9	3.4	7.2	4.7	6.4
<u>Travel Time/Distance</u>								
Less than 15 minutes or 15 miles from home	4.6	3.4	3.8	3.9	4.6	2.7	4.7	2.2
15-30 minutes or 15-30 miles from home	6.5	7.3	7.2	6.6	7.9	6.4	5.7	8.7
Other	5.2	7.3	5.0	7.9	7.8	9.1	5.6	8.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Responses	155	176	180	151	88	110	105	93
(Non-responses)	(2)	(1)	(2)	(1)	(4)	(1)	(3)	(2)

a. Cross-tabulation of responses to TQ 4a and TQ 4b by SQ 2 and SQ 5.

Source: John Blayney Associates, Tyler Research Associates

IMPORTANCE OF LOCATION IN JOB CHOICE

When asked about the relative importance of a specific location in deciding whether or not to accept a job offer, two-thirds of those surveyed indicated that it was a major or minor consideration. Expanding on their responses, half of these workers stated that the job location was important in geographic terms — in California or the Bay Area, close to home, downtown, near a shopping center or close to another place — and half considered location in terms of transportation accessibility — the journey to work. Eighteen percent evaluated the job location in relation to travel time or travel distance from home (the percentages do not add to 100 because of multiple responses.) In terms of a potential BART impact, the first group would be concerned with the physical location of stations and the system configuration, while the second and third groups would look at the transportation service BART offers relative to other modes.

Among the BART commuters considering location important, accessibility to BART was the most frequently volunteered reason (23 percent of the total), while for the others surveyed access to public transportation, but not specifically BART, was the reason mentioned most often (27 percent). San Francisco and Oakland respondents viewed access to public transportation about equally, and Oakland workers favored BART somewhat more often than San Francisco workers (see Table 9).

Respondents hoping to minimize the journey to work by finding a job close to home for the most part chose an Oakland or East Bay workplace. San Francisco workers mentioned this reason half as frequently as Oakland workers (6 percent vs. 15 percent). San Francisco workers also mentioned commute factors as the most important reason about one-third as often as Oakland workers (3 vs. 8 percent). For them the perceived benefits of a downtown location outweighed the costs of potentially longer commutes. BART's role in this decision-making process is addressed in the following chapter.

Only one question in the MTC Workplace Survey addressed the issue of job choice. The reason given by almost half the respondents to accept their present job was "other job-related (better job, better pay, interesting work." Secondary reasons included, "no choice, needed a job and this was the first available" and "transferred." The reason most relevant to BART, "convenient to public transportation," was cited by less than one percent of the respondents. "Convenient to home/shorter commute" fared better, being mentioned by just over six percent of the respondents. All told, transportation-related and location-related reasons were not very important factors in the job choices of workers included in the MTC Survey.

4. BART'S ROLE IN THE DECISION-MAKING PROCESS

In this chapter BART's role in the decision-making process is examined in relation to six research hypotheses formulated at the outset of the study. Whether certain socio-economic groups, particularly minorities, are influenced by BART more than others also is addressed. The relationship between job location and residence location decisions is included in the hypothesis-specific analyses. For details on BART's effects on households' location decisions, the Work Element 3 working paper should be consulted.

IMPACTS ON JOB LOCATION DECISIONS

HYPOTHESIS 1. BART accessibility is important in job location decisions.

Both the TRA Workplace Location Survey and the MTC Workplace Survey demonstrated that factors specific to the job (salary, skills required, working hours) typically outweigh location factors. Nevertheless, two-thirds of the TRA Survey respondents said that the specific location of the job was a major or minor consideration in job acceptance. Approximately one person in three cited proximity to a BART station as a major or minor consideration in job choice. One person in four stated that they looked for work in certain areas with the idea of commuting by BART. One in ten respondents revealed that they looked for work in areas they would not have considered except for the fact that commuting by BART was possible. Most of this interest in BART was expressed by the BART commuters, as the statistics in Table 10 show.

TABLE 10. IMPORTANCE OF A JOB LOCATION NEAR BART FOR BART
COMMUTERS VS. OTHERS SURVEYED^a
(Percent Distribution)

	<u>BART Commuters</u>	<u>Other</u>
Proximity to BART		
-Major consideration	31.3	7.6
-Minor consideration	32.1	16.6
Looked for work in areas with expectation of using BART	39.7	20.7
Looked for work in areas only because of BART	38.5	36.7
Total respondents	131	145

a. Cross-tabulation of responses to TQ 7 and TQ 8 by SQ 5.

Source: John Blayney Associates, Tyler Research Associates

Stratifying these responses by both workplace and residence location showed that Transbay commuters employed in San Francisco valued access to BART more highly than East Bay workers or San Francisco residents. Proportionally, 27 percent of these respondents stated that proximity to BART was a major consideration in their location decision, and 30 percent a minor consideration. Among East Bay workers surveyed, proximity to BART was a major consideration for 20 percent of the job changers, and a minor consideration for 30 percent. These cross-tabulations suggest that BART accessibility mainly is important in the job location decisions of Transbay commuters and East Bay workers living in the BART service area. *

A look at the mode choice decisions of job changers provides a further perspective on the role of BART accessibility in the location decision. BART users are those most clearly taking advantage of the accessibility the system offers. In fact, BART commuters surveyed were more concerned with minimizing travel time and cost than other workers and mentioned accessibility to home or job less frequently (see Table 11). They also were more interested in minimizing driving and parking problems than those using other modes of transportation to get to work.

TABLE 11. MOST IMPORTANT REASON FOR CHOOSING A TRANSPORTATION MODE, BART COMMUTERS VS. OTHERS SURVEYED^a
(Percent Distribution)

	<u>BART Commuters</u>	<u>Other</u>
Most accessible to home and job	22.6	32.3
Minimum travel time or cost	32.0	23.0
Minimizes driving/parking problems	14.0	4.3
Only transportation available	8.0	8.7
Other	<u>23.4</u>	<u>31.7</u>
	100.0	100.0
Total respondents	150	161

a. Cross-tabulation of responses to TQ 32b by SQ 5.

Source: John Blayney Associates, Tyler Research Associates

4. For details on BART's accessibility impacts, see John Blayney Associates/David M. Dornbusch & Company, Inc., Accessibility Mapping (Berkeley: BART Impact Program, Land Use and Urban Development Project Working Paper, September 1977).

Among the reasons for not using BART, long travel times, poor schedules, and the need for transfers were mentioned by 16 percent of the San Francisco workers and 31 percent of the Oakland workers surveyed. Forty percent of the San Francisco workers and 22 percent of the Oakland workers reported that BART was relatively inaccessible from their homes (see Table 12). These findings suggest that as train service levels improve and feeder bus service is expanded, the potential for a greater impact on workers' location decisions will increase.

TABLE 12. MOST IMPORTANT REASONS FOR NOT USING BART, BY
WORKPLACE^a
(Percent Distribution)

	<u>San Francisco</u>	<u>Oakland</u>
Inaccessible from home	39.7	21.5
Takes too long, poor schedule, transfers	15.9	30.8
Too expensive	14.3	12.3
Not close to job	6.4	12.3
Other	<u>23.7</u>	<u>23.1</u>
	100.0	100.0
Total respondents	63	65
(Non-responses)	(14)	(5)

a. Cross-tabulation of responses to TQ 33b by SQ 2.

Source: John Blayney Associates, Tyler Research Associates

HYPOTHESIS 2. BART facilitates job search.

Here, the objective was to determine whether BART is making it easier to look for a job and travel to interviews. This would alleviate what the economists term "functional unemployment". Responses to Question 10 indicate that BART was used for access to interviews by 20 percent of the workers surveyed, the second most frequently used mode (see Table 13).

TABLE 13. MODES OF TRAVEL TO JOB INTERVIEWS, BART
COMMUTERS VS. OTHERS SURVEYED^a
(Percent Distribution)

	<u>BART Commuters</u>	<u>Other</u>
BART	28.6	6.9
AC Transit	6.2	20.1
San Francisco Muni	10.9	25.0
Auto, including car-pool	40.3	33.4
Other	<u>14.0</u>	<u>14.6</u>
	100.0	100.0
Total respondents	129	144
(Non-responses)	(2)	(1)

a. Cross-tabulation of responses to TQ 10b by SQ 5.

Source: John Blayney Associates, Tyler Research Associates

In terms of workplace location, a greater share of East Bay than West Bay workers relied on BART (35 percent versus 27 percent, respectively), but the difference is not significant statistically. Nor did reliance on BART for access to interviews differ significantly for the socio-economic characteristics of income, age, education, sex, minority status, or auto ownership (see Table 14).

Stratifying by occupation showed that clerical workers are most likely to use BART to go to job interviews, followed by sales workers (see Table 15). Professional and technical workers, proprietors, managers, and officials were less likely to use BART for interviews than the sample as a whole. Service workers also were less likely to use BART for interviews, although their representation in the sample was small, and many job opportunities may be in locations not served by BART.

TABLE 14. SOCIO-ECONOMIC CHARACTERISTICS OF JOB CHANGERS
USING BART FOR INTERVIEW TRIPS VS. ALL JOB
CHANGERS SURVEYED^a
(Percent Distribution)

	<u>All Job Changers</u>	<u>Job Changers Using BART for Most Interview Trips</u>
<u>Sex</u>		
Male	54.3	44.7
Female	45.7	55.3
	<u>100.0</u>	<u>100.0</u>
<u>Age</u>		
Under 25	35.5	38.3
25 to 34	45.7	40.4
35 to 44	11.2	14.9
Over 44	7.2	1.1
	<u>100.0</u>	<u>100.0</u>
<u>Ethnicity</u>		
White	71.0	76.6
Spanish American/ Spanish Heritage	6.5	10.6
Black	12.7	6.4
Asian	6.5	6.4
	<u>100.0</u>	<u>100.0</u>
<u>Residence</u>		
Percent Living in the East Bay	68.5	78.7
<u>Education</u>		
Percent College Graduates	43.5	44.7
<u>Auto Ownership</u>		
Percent without Private Vehicles	22.1	31.9
Total Respondents	276	47

a. Cross-tabulation of responses to TQ 10b by SQ 6, SQ 7,
TQ 47 and TQ 49.

Source: John Blayney Associates, Tyler Research Associates

TABLE 15. BART USE FOR JOB INTERVIEWS AND IMPORTANCE IN JOB LOCATION DECISIONS AMONG DIFFERENT OCCUPATIONAL GROUPS

<u>Occupational Category</u>	<u>Total Respondents</u>	<u>Percent Using BART for Access to Job Interviews</u>	<u>Percent Citing BART as Important in Job Choice</u>
Professional, Technical	103	27.2	32.0
Proprietors, Managers, Officials	44	25.0	22.7
Sales Workers	21	52.4	61.9
Clerical	96	38.5	43.8
Craftsmen, Foremen	13	38.5	38.5
Operatives	8	37.5	62.5
Service Workers	24	8.3	20.8
Laborers	<u>5</u>	<u>0.0</u>	<u>40.0</u>
	314	30.9	36.6
Chi Square Level of Significance		*	0.015
*Not significant at the 0.05 level.			

Source: John Blayney Associates, Tyler Research Associates

HYPOTHESIS 3. BART has a greater effect on white collar workers' job location decisions than those of blue collar workers.

Table 14 shows that clerical and sales workers are most interested in BART. Professional and technical workers, proprietors, managers, officials, and service workers place less importance on BART access.

When occupations are aggregated by white collar versus blue collar workers and then cross-tabulated with a series of questions addressing the importance of BART in job location decisions, the differences are not statistically significant. Blue collar versus white collar responses do not vary significantly with respect to two questions: one dealing with the importance of location in job choice as compared to all other job choice factors (Question 3 of the telephone questionnaire) and the other focusing on the extent to which respondents looked for jobs only in areas served by BART (Question 8 of the telephone questionnaire). This analysis indicates that, although BART has a greater effect on some occupational groups than on other occupational groups, clear distinctions between white collar workers and blue collar workers cannot be drawn.

HYPOTHESIS 4. BART's influence is unrelated to prior transit use.

The single variable distributions for questions related to BART's influence on job location decisions were presented in the discussion of Hypothesis 1. Cross-tabulations are required for the testing of Hypothesis 4.

Only for San Francisco workers was a statistically significant difference in attitudes toward BART found between respondents who commuted by BART to their previous job and those who did not commute by BART. (See Table 16). Twenty-nine percent of those who did not use transit to reach a previous job considered BART important in job choice, compared with 57 percent of those who had used transit.

The prior mode of all BART commuters surveyed who changed jobs within the Bay Area is shown in Table 17. Of note is the fact that three out of four BART riders used to use other modes of transportation for commuting purposes.

The distribution of responses in Tables 16 and 17 complements intuitive expectations: one would expect that persons previously commuting by transit, but not necessarily by BART, would be more interested in having their new workplace accessible by BART, both because of habit and possible lack of an alternative mode. The occurrence of statistical significance for respondents with San Francisco workplace locations but not for respondents with East Bay workplace locations also has intuitive validity. Transportation options are more constrained for San Francisco workplaces than East Bay workplaces. Assuming that respondents typically have their previous job and current job on the same side of the Bay, San Francisco workers are more likely to be dependent upon public transit access to both their previous and current jobs; hence, the greater orientation toward accepting a job in proximity to BART. Also, the large number of jobs close to BART, Bay Bridge congestion, and high parking charges cause East Bay residents employed in San Francisco to have a high propensity to use transit.

TABLE 16. IMPORTANCE OF BART IN JOB LOCATION DECISIONS
VERSUS PRIOR RELIANCE ON TRANSIT FOR JOB ACCESS
AMONG WEST BAY RESPONDENTS

	<u>Total Respondents</u>	<u>Percent Citing BART as Impor- tant in Job Choice</u>
Prior Reliance on Transit		
-Respondents Commuting by Transit to Previous Job	23	56.5
-Respondents Not Commuting by Transit to Previous Job	<u>149</u>	<u>28.9</u>
	172	32.6
Chi Square Level of Significance		0.017

Source: John Blayney Associates, Tyler Research Associates

TABLE 17. PRIOR MODE OF BART COMMUTERS CHANGING JOBS OR
JOB LOCATIONS WITHIN THE BAY AREA^a
(Percent Distribution)

<u>Prior Mode</u>	<u>Current BART Commuter</u>	
	<u>Changing Jobs</u>	<u>Changing Job Locations</u>
BART	27.6	39.1
AC Transit	15.8	13.0
San Francisco Muni	15.8	13.0
Auto, including car-pool	25.0	26.0
Other	<u>15.8</u>	<u>8.9</u>
	100.0	100.0
Total respondents	76	23

a. Cross-tabulation of TQ 12 and TQ 28 by SQ 5.

Source: John Blayney Associates, Tyler Research Associates

In sum, BART's influence is unrelated to prior transit use for East Bay workers, but is related to prior transit use for persons employed in San Francisco.

IMPACTS ON RESIDENTIAL LOCATION DECISIONS

HYPOTHESIS 5. BART accessibility is important in residential location decisions.

Both the MTC Workplace Survey and the TRA Workplace Location Survey contained questions germane to Hypothesis 5, though again only the TRA survey was designed to obtain specific data on this point. One MTC survey question asked respondents whether they own or rent their current residence, and whether they owned or rented their previous residence. Fifty-five percent of the respondents owned their current residence, but only 32 percent of the respondents owned their previous residence. Because a higher proportion of rental housing than owner-occupied housing is close to BART, the net effect of all workers' moves is to increase the median distance to BART. The MTC survey also asked whether the respondents previously lived outside the Bay Area, within the same Bay Area city, or within a different Bay Area city. Sixteen percent of the respondents previously lived outside the Bay Area. Half of the remaining respondents formerly had lived in the same Bay Area city and half in another Bay Area city. If, as reported, 42 percent of Bay Area households typically do not change jurisdictions when they change residence, much of the importance of BART in residential location decisions may depend on existing reliance on BART rather than potential use.

The TRA survey devoted two questions to residential location decisions. (A completely separate survey is being conducted by TRA in conjunction with the study of households' location decisions). Question 37 grouped reasons for changing residences according to the categories of housing needs, location, job reasons, commute reasons, and other reasons. Reasons given by respondents for a change in residential location focused mainly on housing needs, i.e., "experienced a change in family composition, wanted larger/smaller space, wanted own place". Transportation considerations rarely were mentioned, and references to BART were negligible.

Question 38 asked whether the availability of BART was a major consideration, minor consideration, or not a consideration in the decision on where to move. Approximately 20 percent of the respondents stated that BART was a major consideration, another 20 percent cited BART as a minor consideration, and the remaining 60 percent did not consider BART at all. The responses to Question 38 are not entirely consistent with the responses to Question 37, possibly because respondents considered BART as a component in the location decision only when asked to focus on transportation issues.

As would be expected, the more importance given to BART in residential location decisions, the more weight BART carried in job locational decisions. Among respondents indicating that BART was a major consideration in residential location decisions, 62 percent also cited BART as important in job location decisions. By contrast, among those who did not consider BART in their residential location decisions, only 36 percent cited BART as important in job location decisions. However, these differences are not statistically significant at the 95 percent confidence level.

The relative importance of BART in relocation decisions did not vary significantly for East Bay versus West Bay current residential locations. Nor did a significant variation occur for socio-economic characteristics such as income, occupation, age, education, sex, or minority status. (See Table 18.)

To conclude, responses to specific questions about BART's influence indicate that BART is an important factor in about one-fifth of respondents' residential location decisions, but relative to other factors proximity to BART is not very important and rarely dictates neighborhood choice.

HYPOTHESIS 6. The closer people live to BART, the greater is BART's influence on job location decisions.

This hypothesis, in contrast to Hypothesis 1, addresses the question of residence proximity to BART as a factor explaining BART's role in job choice. For workers changing job location but not residence location, the option to ride BART depends on local accessibility to a station. The issue is whether those within 10 minutes walking distance attached any greater importance to BART than those within 10 minutes driving distance. If this is occurring, then the potential for an impact on the local housing market and property values and rents within the vicinity of BART increases.

Thirty-eight percent of respondents living within either 10 minutes walking or 10 minutes driving distance to a BART station either volunteered access to BART as a reason for choosing a job location or considered BART a major or minor factor in job choice. By contrast, only 17 percent of those living further away responded in a similar fashion. Stratifying by access mode (Table 19) shows no significant differences among this first group. About the same proportion of those living within driving distance considered BART a major factor in their job location decisions. This suggests that travel time to BART, rather than geographic proximity, is the critical determinant.

WHO IS INFLUENCED BY BART?

Having examined the individual facets of BART's effects on workers' location decisions in terms of the research hypotheses, the next step was to determine whether BART affects specific socio-economic groups, particularly minorities, differently. These analyses focused on comparisons of the socio-economic characteristics of respondents influenced by BART in their workplace and residential location decisions and those who were not.

Socio-economic variables were examined from two perspectives. One perspective can be termed static; BART's impacts are correlated to income levels, household size, etc., at some fixed point in time. Alternatively, a dynamic perspective correlates BART's impacts to changes in income levels and household size over time. Because high degrees of correlation were achieved from analysis of changes rather than static conditions, the dynamic perspective will be described first.

TABLE 18. RELATIONSHIP BETWEEN SOCIO-ECONOMIC CHARACTERISTICS OF SURVEY RESPONDENTS AND THE IMPORTANCE OF BART IN RESIDENTIAL LOCATION DECISIONS^a

	Total Respon- dents	Percent Citing BART as a Major Consideration in Residential Location	Percent Citing BART as a Minor Consideration in Residential Location
<u>Sex</u>			
Male	73	20.5	21.9
Female	61	18.0	19.7
<u>Ethnicity</u>			
White	102	19.6	20.6
Spanish-American/ Spanish Heritage	8	37.5	0.0
Black	13	7.7	23.1
Asian	6	16.7	50.0
American Indian	1	0.0	0.0
<u>Income</u>			
Under \$7,000	34	3.8	14.7
\$7,000 to \$15,000	42	26.2	19.0
\$15,000 to \$25,000	38	18.4	36.8
Over \$25,000	12	33.3	0.0
<u>Age</u>			
Under 25	46	15.2	17.4
25 to 34	67	20.9	23.9
34 to 44	15	26.7	20.0
Over 44	5	0.0	20.0
<u>Education</u>			
High School Graduate	21	19.0	14.3
Trade School or 1-3 Years College	51	19.6	21.6
College Graduate or Higher	62	19.4	22.6
<u>Occupation</u>			
White Collar	117	20.5	21.4
Blue Collar	17	11.8	17.6

a. Cross-tabulation of responses to TQ 38 by SQ 6, SQ 7, TQ 46a, TQ 47, TQ 48, and TQ 49.

Source: John Blayney Associates, Tyler Research Associates

TABLE 19. RELATIONSHIP BETWEEN RESIDENCE PROXIMITY TO
BART AND BART'S IMPORTANCE IN JOB CHOICE^a
(Percent Distribution)

		Proximity of Residence to BART	
		<u>Within 10 Minutes Walking Distance</u>	<u>Within 10 Minutes Driving Distance</u>
Importance of BART in Job Location Decision	<u>All Job Changes</u>		
-Major consideration	18.8	20.7	19.9
-Minor consideration	23.9	28.7	21.6
Total respondents	276	87	171

a. Cross-tabulation of responses to TQ 7 by TQ 29 and TQ 30.

Source: John Blayney Associates, Tyler Research Associates

Dynamic Perspective — Much empirical research has been conducted on the validity of workplace and residential location theories, the most useful (for purposes of Work Element 4) being the model of intrametropolitan moving behavior developed by Professor H. James Brown from BATSC data. Professor Brown, a resource person for the LU&UD Project, identified four principal factors associated with household relocation decisions:

- Life cycle or family size and composition changes
- Changes in family income or wealth
- Changes in workplace location
- Changes in housing market supply conditions

Accordingly, "change variable" analyses were incorporated into Work Element 4. Survey questions on the importance of BART in job location and residential location decisions were cross-tabulated with survey questions on changes in marital status, number of employed persons per household, household income, and household size (see Table 20).

A change in the respondent's marital status, when cross-tabulated with the relative importance of being near a BART station in job location decisions, produced a Chi-square statistic that is significant at the 99 percent confidence level. Formation of a household may bring a change in the length of the journey to work, in the availability of an automobile, or in the desire to have alternate transportation modes available. Change in marital status may correlate with importance of job access by BART because accompanying recent or planned changes in job or residential location have caused those respondents to evaluate transportation options.

Change variables showing no statistical significance when compared to the importance of BART in job location and residential location decisions were changes in income, the number of employed persons per household, and household size. One might have expected a negative correlation between changes in income and changes in the perceived importance of BART; that is, as incomes increase, the necessity for relying on BART decrease, or conversely, as incomes decrease the necessity for relying on BART increases.

Intuitively, as the number of employed persons per household increases, opportunities for driving to work should decrease. Public transportation would become ever more important, notably the option to ride BART to work. But this was not the case.

Finally, a positive correlation would have been expected for the importance of BART as compared to changes in household size; a change in the number of people in a household may increase the likelihood of the household relying

TABLE 20. RELATIONSHIP BETWEEN THE IMPORTANCE OF PROXIMITY TO BART IN JOB CHOICE AND CHANGES IN MARITAL STATUS, EMPLOYED HOUSEHOLD MEMBERS, HOUSEHOLD INCOME, HOUSEHOLD SIZE^a

	Total Respon- dents	Percent Citing Proximity to BART as a Major Consideration in Job Choice	Percent Citing Proximity to BART as a Minor Consideration in Job Choice	Chi-Square Level of Signifi- cance
<u>Change in Marital Status, 1976-1977</u>				
Married	13	53.8	15.4	.009
Divorced, Widowed or Separated	4	50.0	25.0	
No Change	209	16.6	24.3	
<u>Change in Household Members Employed, 1976-1977</u>				
Increase	56	8.9	32.1	*
Decrease	56	17.2	25.9	
No Change	159	23.3	20.8	
<u>Change in Household Income, 1975-1976</u>				
Increase	103	17.5	31.1	*
Decrease	20	25.0	15.0	
No Change	153	19.0	20.3	
<u>Change in Household Size, 1976-1977</u>				
Increase	47	12.8	29.8	*
Decrease	55	23.6	25.5	
No Change	174	19.0	21.8	

*Not significant at the 0.05 level.

a. Cross-tabulation of responses to TQ 7 by TQ 41, TQ 42, TQ 43 and TQ 46.

Source: John Blayney Associates, Tyler Research Associates

on BART, at least in the short-run, to satisfy some of its transportation requirements. The birth of a child, the arrival of an in-law, the departure of a teenager to college (possibly with a car) all may cause the household to re-examine its transportation options. In the absence of any of these changes — marital status, number employed, income, household size — workers may have less incentive to weigh the merits of various modes when making job location decisions.

Static Perspective — As noted previously, the only socio-economic variable that consistently demonstrated statistical significance when cross-tabulated with various questions on the importance of BART in job location decisions was occupation. Nevertheless, other socio-economically related variations in survey responses are worth noting. Tables 21 and 22 summarize the relevant statistics.

The ratio of female respondents who had changed jobs in the last year to female respondents who had changed jobs in the past three years was greater than the comparable ratio for male respondents (1.05 versus .92 respectively). Moreover, a greater percentage of female respondents had obtained their first job in the past three years than male respondents obtaining their first job in the past three years (22 percent versus 17 percent). In contrast, 62 percent of the male respondents had changed residential locations in the past two years versus 56 percent of the female respondents. Thus, female respondents have changed jobs more often, but this is not explained by changes in residential location. None of the cross-tabulations comparing sex of the respondent to the importance of BART in job location decisions, however, produced statistical significance.

Comparing the characteristics of survey respondents who commute by BART to the characteristics of survey respondents as a whole, the BART commuters are more likely to be married, are more likely to be highly educated, and are more likely to own an automobile. The ratio of primary to secondary wage earners among BART commuters is virtually the same as that of the survey sample as a whole.

Respondents changing jobs with greater than average frequency typically were lower income rather than upper income. Co-variations between frequency of job change and other socio-economic variables (sex, age, occupation, and ethnic identity) were less consistent. Again, however, neither the distribution of incomes among the respondents nor changes in income of respondents correlated significantly with the importance of BART in job choice during statistical analyses.

Respondents who interviewed for more than one job were disproportionately male, under 35, and white. No substantial distinction relating to occupation or income level was evident. Among respondents citing specific job location as not a major consideration in job choice, disproportionate representation was found among males, persons between the ages of 25 and 34, and persons in blue collar occupations. No distinction was evident for racial identity or income level.

Minorities are under-represented for BART work trips (constituting 28 percent

TABLE 21. RELATIONSHIP BETWEEN SOCIO-ECONOMIC CHARACTERISTICS OF SURVEY RESPONDENTS AND THE IMPORTANCE OF BART IN JOB CHOICE^a

	Total Respon- dents	Percent Citing BART as Impor- tant in Job Choice	Chi-Square Level of Signifi- cance
<u>Sex</u>			
Male	172	34.9	*
Female	142	38.7	
<u>Ethnicity</u>			
White	226	34.5	*
Spanish-American/ Spanish Heritage	19	57.9	
Black	39	35.9	
Asian	20	40.0	
American Indian	4	50.0	
<u>Income</u>			
Under \$7,000	79	49.5	*
\$7,000 to \$15,000	89	40.8	
\$15,000 to \$25,000	77	34.6	
Over \$25,000	33	27.0	
<u>Age</u>			
Under 25	102	43.4	.05
25 to 34	138	35.0	
35 to 44	38	34.0	
Over 44	30	10.0	
<u>Education</u>			
High School Graduate	51	31.0	*
Trade School or 1-3 Years College	125	41.0	
College Graduate or Higher	138	35.0	
<u>Wage Earner Status</u>			
Principal Wage Earner	162	33.3	*
Secondary Wage Earner	70	42.9	
Equal Wage Earner	81	38.3	

*Not significant at the 0.05 level.

a. Stratification of positive responses to questions on BART's importance in job location, TQ 2a, TQ 7, TQ 8, or TQ 9 by respondents socio-economic characteristics SQ 6, SQ 7, TQ 46a, TQ 47, TQ 48, and TQ 49.

Source: John Blayney Associates, Tyler Research Associates

TABLE 22. RELATIONSHIP BETWEEN SOCIO-ECONOMIC CHARACTERISTICS, WORKPLACE LOCATION, AND COMMUTE MODE OF SURVEY RESPONDENTS CONSIDERING BART IMPORTANT IN JOB CHOICE^a (Percent Distribution)

	Consider BART Important in Job Choice			
	BART Commuters	Others	San Francisco Workers	Oakland Workers
<u>Sex</u>				
Male	52.6	51.3	51.8	52.5
Female	47.4	48.7	48.2	47.5
<u>Ethnicity</u>				
White	77.3	52.6	72.2	66.1
Spanish-American/ Spanish Heritage	8.0	13.2	5.6	13.6
Black	8.0	21.1	13.0	11.9
Other	6.7	13.2	9.3	8.5
(Non-response)	-	-	-	(2)
<u>Income</u>				
Under \$7,000	23.9	43.6	22.6	38.6
\$7,000 to \$15,000	28.2	30.8	24.5	33.3
\$15,000 to \$25,000	31.0	20.5	37.7	17.5
Over \$25,000	16.9	5.1	15.1	10.5
(Non-response)	-	-	(2)	(2)
<u>Age</u>				
Under 25	42.7	35.9	34.5	45.8
25 to 34	42.7	46.2	47.3	40.7
35 to 44	10.7	15.4	14.5	10.2
Over 44	4.0	2.6	3.6	3.4
<u>Education</u>				
High School Graduate	14.5	12.8	8.9	18.6
Trade School or 1-3 Years College	50.0	33.3	50.0	39.0
College Graduate or Higher	35.5	53.8	41.1	42.4
<u>Wage Earner Status</u>				
Principal Wage Earner	42.1	56.4	44.6	49.2
Secondary Wage Earner	31.6	15.4	25.0	27.1
Equal Wage Earner	26.3	28.2	30.4	23.7
Total Respondents	150	164	56	59

a. Cross-tabulation of responses to SQ 6, SQ 7, TQ 45, TQ 46a, TQ 47, and TQ 49 by SQ 2 and SQ 5 for respondents mentioning BART as a factor in job choice in TQ 2, TQ 4, TQ 7, TQ 8 or TQ 9.

Source: John Blayney Associates, Tyler Research Associates

of the survey respondents, but only 23 percent of respondents commuting to work by BART) — a finding similar to the BART Passenger Profile Survey. A somewhat greater proportion of males than females rode BART to work (47 vs. 40 percent). Arguably, if minorities and women are less interested in BART for the journey to work, then they will also be less interested in BART in job location decisions. The lack of expressed interest in BART on the part of minorities and women is not explainable by lack of proximity to BART, but is partially explainable by the disproportionately small share of minorities and women who commuted by BART to their previous jobs. Conceivably, a relatively small proportion of jobs typically held by minorities and women are best served by BART as compared to other access modes. Again, no statistical significance was achieved during cross-tabulations of the importance of BART in job location decisions versus the socio-economic variables of minority status and sex.

5. CONCLUSIONS AND IMPLICATIONS

Typically job-related reasons dictated job choice; BART accessibility rarely was the most important reason for accepting a job. Even among BART commuters proximity to a station only was volunteered by 11 percent of the downtown workers surveyed as a reason for choosing their present job. Overall, transportation-related reasons were considered by about one-fifth of the workers surveyed, and this probably should be expected. Given a relatively high degree of accessibility in the Bay Area with an extensive highway and transit system, transportation and the availability of transit should not be a constraint on job choice for most workers, particularly because over 90 percent of those surveyed had regular access to an automobile.

When the relative importance of the job location was examined, about half the workers viewed it in terms of transportation accessibility — the journey to work — while half considered it in geographic terms — a Bay Area or California job. Among BART commuters, access to BART was the most frequently volunteered reason, and 40 percent looked in areas with the expectation of using BART or only because of BART. Only one-quarter of this group formerly commuted by BART to their prior job, suggesting that BART's impact on job location decisions is not limited solely to the seasoned BART rider or the transit user in general. The implication of this finding is that BART is expanding its potential market by its effect on job location decisions. Whether these commuters remain BART riders depends on the quality of service offered. (Poor service — long travel times, poor schedules, and too many transfers — was one of the most frequently mentioned reasons for not using BART among those surveyed.)

The principal findings of the survey of downtown workers pertaining to the original research hypotheses can be summarized as follows:

- Among downtown workers, particularly long distance commuters, proximity to a BART station is somewhat important, but rarely determines job choice. Relative to other factors BART's influence on location decisions was small and mainly affected Transbay commuters working in San Francisco.
- BART was used by people looking for a job; approximately one-third of the workers surveyed rode BART to job interviews.
- Clerical and sales workers expressed greater interest in BART than other occupational groups probably because such jobs are low paid and concentrated around downtown stations.
- BART's influence on job location decisions is not limited to those who commuted by BART or even transit to their former job or job location mainly because BART draws its patronage not just from transit users but also from car drivers and carpoolers.

- BART rarely was a major factor in residence choice among those surveyed who recently had moved, but when asked about the relative importance of proximity to a station, 20 percent indicated that it was a major consideration, suggesting a limited impact on residential location decisions.
- Residence location relative to a BART station — within or beyond walking distance — had no significant effect on attitudes toward BART and its importance in job location decisions.

Those under 30 and those with a recent change in marital status were much more likely than other workers surveyed to be interested in BART. In the case of younger workers many are new to the labor force and do not yet have sufficient income to afford to drive to work. Formation of a household may bring a change in length of the journey to work, or the availability of an automobile. In both these cases, the respondents probably were more sensitive to their transportation options than other workers. Whether they remain BART riders, if they commute by BART, will depend, as mentioned earlier, on BART's ability to improve service quality.

In terms of the No-BART Alternative — the MTC-defined regional bus transit system that might have existed in the absence of BART — BART's effect on job location decisions may be greater because of its appeal to the non-transit rider — the "hedger" interested in the option to commute by BART who does not ride BART now.⁵ Further, to the extent that BART increases capacity in the Bay Bridge corridor more than the NBA, it will have a greater influence on downtown San Francisco location decisions over time than the NBA because of the Transbay commuters, both BART riders and non-riders, are most sensitive to the advantages BART offers. Outside San Francisco, differences between BART's long-range effects on workers' location decisions and the NBA's may not be apparent until highway congestion and parking prices increase. Even then, the NBA may be able to accommodate the same ridership as BART, but because BART is a highly visible, well-publicized transportation improvement it should have a greater impact on workers' location decisions than the NBA. BART's amenities, such as direct walkways to the BART system in the Oakland City Center, are unquantifiable factors that distinguish it from the NBA.

POLICY IMPLICATIONS

A better understanding of how BART, and possibly rail transit anywhere, affects workers' location decisions can aid in formulating land use and urban development policy. The findings of this survey suggest the following policy implications. These will be correlated with the findings of the study of employers' location decisions (Work Element 8) in formulating recommendations to be included in the final report.

5. For further details on the hedging process, see the Study of Households' Location Decisions, p. 33 and pp. 47-59 for details on the NBA, see Metropolitan Transportation Commission Rationale and Specification for the No-BART Alternative (Berkeley: BART Impact Program Working Note, September 1976).

First, because BART is recognized as an amenity by office workers and sales workers, it provides support for continued centralization of office space and the retail core. BART has some effect on employment opportunities to the extent that some workers sought employment in some areas only because of BART. Over time this might make the labor market somewhat more competitive as workers' mobility is increased. (Whether these advantages are perceived by employers is being addressed in Work Element 8).

Second, because BART is affecting the location decisions of both riders and non-riders alike, the long-term prospects for increased patronage from downtown workers are greater than extrapolation of trends based on ridership surveys might suggest. Further, if local communities encourage housing developments, particularly mixed developments offering homeownership opportunities, within station areas and also within catchment areas served by feeder buses or accessible by car, then BART's effects on workers' location decisions will be greater, because the journey to work remains an important determinant of workplace-residence location choice.

Third, the importance of service levels and door-to-door travel times should not be underestimated. Among workers surveyed the most frequently mentioned reasons for not using BART were that the system was inaccessible from home and that the service was poor. With extensive neighborhood feeder service, good train schedules, and minimum transfers, BART's potential for affecting location decisions will be greater than it is today, but even then it is unlikely to be a determinant of job choice.

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RESOURCE PANEL

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APPENDIX A: TRA WORKPLACE LOCATION SURVEY

QUESTIONNAIRES FOR STUDY OF WORKERS' LOCATION DECISIONS

The screening questionnaire and the telephone questionnaire reproduced on the following pages include a listing of the actual responses for the sample of 314 downtown San Francisco and Oakland workers interviewed.

For details on how the survey data were coded and prepared for statistical analysis, the Survey Methodology Working Note should be consulted.¹ All survey data will be available in machine readable form at the Metropolitan Transportation Commission following completion of the project.

1. Tyler Research Associates, Survey Methodology for the Study of Workers' Location Decisions (Berkeley: BART Impact Program, Land Use and Urban Development Project Working Note, September 1977).

WORKPLACE LOCATION STUDY

SCREENING QUESTIONNAIRE

Hello, I'm _____ from Tyler Research, a national public opinion research firm. We are conducting an employment survey about why people work where they do, and I'd like to ask you a few brief questions.

1. Are you currently employed in either a permanent full-time job or a permanent part-time job?

Yes, permanent full-time	282	
Yes, permanent part-time	32	(CONTINUE WITH Q.2)
Not employed in a permanent job		(TERMINATE)

2. (HAND RESPONDENT MAP) Do you work in one of the numbered areas shown on this map? (IF "YES," RECORD NUMBER OF AREA. IF "NO," TERMINATE)

Work In Area Number _____

I don't need to know the specific address, but would you tell me the name of the city where you work and the nearest cross streets to your workplace?

City _____

Cross Streets _____ and _____

3. (HAND RESPONDENT MAP) Do you live in one of the numbered areas shown on this map? (IF "YES," RECORD NUMBER OF AREA. IF "NO," TERMINATE)

Live In Area Number _____

I don't need to know the specific address, but would you tell me the name of the city where you live and the nearest cross streets to your home?

City _____

Cross Streets _____ and _____

4a. (HAND RESPONDENT CARD "A") Which of the statements on this card, if any, describe you? (RECORD BELOW, BE SURE TO CHECK ALL THAT APPLY)

A. I have changed employers in the <u>past year</u> .	136
B. I have changed employers in the <u>past three years</u> .	139
C. My employer has moved or changed my job location to a different building in the <u>past year</u> .	35
D. My employer has moved or changed my job location to a different building in the <u>past 3 years</u> .	28
E. I have gotten my first job in the <u>past year</u> .	29
F. I have gotten my first job in the <u>past 3 years</u> .	31

(INTERVIEWER: IF NONE OF THE STATEMENTS ARE CHECKED, TERMINATE)

4b. Have you changed the location of your housing in the past 2 years?

Yes	187	(CONTINUE WITH Q.5)
No	127	
Refused		(TERMINATE)

(READ TO EVERYONE)

We are planning to conduct some telephone interviews with working people like you when they are at home and we would like to include you. Is that O.K.?

Yes	()	(CONTINUE WITH Q.5)
No	()	(TERMINATE)

5. I am going to need just a little more information from you for background purposes. First, how do you usually get to and from work? (RECORD BELOW, IF MORE THAN ONE FORM OF TRANSPORTATION MENTIONED; ASK:) Which kind of transportation do you use for the longest (distance) part of your commute? (IF RESPONDENT GOES TO WORK ONE WAY AND RETURNS BY ANOTHER MEANS OF TRANSPORTATION, BE SURE TO INDICATE WHICH IS WHICH)

	Use For Longest Part Of Commute	Use For Rest Of Commute
AC Transit	48	36
San Francisco MUNI	51	12
BART	138	11
Golden Gate Transit	0	0
Southern Pacific Railway	0	0
Samtrans (formerly Greyhound)	0	1
Jitney	0	1
Private Auto, Truck, Van, Motorcycle, Etc.	46	52
Car-pool (3 or more in car)	7	5
Walk	10	94
Bicycle	3	1
Taxi	0	2
Other _____	2	0
	(SPECIFY)	
Work at home	3	0
Go one way/return another	6	97

(HAND RESPONDENT CARD "D")

6. Which of the following categories best describes your ethnic background?

American Indian or Alaskan Native	4
Asian or Pacific Islander	20
Black/African-American	39
Spanish-American/Spanish Heritage	19
Caucasian/White	226
Other _____	0
(SPECIFY)	
Refused	6

7. (RECORD BY OBSERVATION)

Sex:

Female	142
Male	172

=====

So that we may contact you later, may I have your:

NAME _____ PHONE NO. _____

ADDRESS _____ CITY _____ ZIP _____

We will be calling in the late afternoon and evenings or on the weekends. Are there any times that are better for us to call you than others? When would that be?

Best time to call _____

Are any days better than others? Which days are best?

Best days to call _____

THANK YOU VERY MUCH.

INTERVIEWER _____ DATE _____

LOCATION _____

CITY _____

ENDING TIME _____

WORKPLACE LOCATION STUDY
TELEPHONE QUESTIONNAIRE

Hello, may I please speak to (RESPONDENT INDICATED ON SCREENING QUESTIONNAIRE; NO SUBSTITUTIONS ARE ALLOWED)? (IF RESPONDENT IS UNAVAILABLE, ASK FOR THE BEST TIME TO CALL BACK. WHEN YOU HAVE THE PROPER RESPONDENT, CONTINUE WITH INTRODUCTION.)

My name is _____. I'm from Tyler Research Associates. One of our interviewers spoke to you recently about the study concerning why people work where they do, and you were nice enough to agree to participate. Do you have a few minutes now? (IF "YES," CONTINUE; OTHERWISE MAKE AN APPOINTMENT TO CALL BACK.)

Callback #1 on _____ at _____ AM/PM 31-_____

Callback #2 on _____ at _____ AM/PM 32-_____

Callback #3 on _____ at _____ AM/PM 33-_____

34-_____

Respondent Category 35-1 _____ (ASK Q.1)

Respondent Category -2 _____ (SKIP TO Q.13)

TIME BEGUN _____ AM/PM

1. First, I'd like you to think back to the time when you were considering accepting the job you have now. At that time, did you interview for other jobs as well, or only for the one that you took?

Other jobs as well 157

Only the one job 119

- 2a. As far as you can remember, what were some of the reasons that led you to take your present job? (DO NOT READ LIST. CHECK EACH REASON RESPONDENT MENTIONS)
PROBE: What other reasons can you remember? PROBE: Any others?

- 2b. Of the reasons you mentioned, which one was the most important in your decision to take your present job? (CIRCLE THE ONE REASON MENTIONED AS MOST IMPORTANT)

JOB ITSELF

- 16 Only job available in my field
94 The salary/Good salary/Better pay than my last job
38 Better chance for advancement than my last job
56 Good benefits/Hours
42 First job offered to me

25 Only job I could get
19 Attractive place to work/Liked the office
17 Logical career step in my field
70 Job suited my skills/Background/Training
53 Job sounded interesting/Challenging
30 I liked the work better than my last job
9 Permanent position

TRANSPORTATION

- 12 Short commute from home/Close to where I live
21 Could use public transportation to get to work (PROBE FOR TYPE, CODE HERE FOR SYSTEMS OTHER THAN BART)
16 Could use BART to get to work (SPECIFIC MENTION)
3 Could walk to work
1 Would not have to drive to work
1 Cheap commute from home
1 Could drive to work

OTHER REASONS

- 39 Friends work there/Liked the people
5 Family member/Relative works there
1 Close to where another family member/Friend works
31 Liked the location
4 Job was in California
20 Job was in Bay Area

- 8 Others See code _____ 0
 _____ (SPECIFY) _____
0 _____
14 See code _____

3. As far as you can remember, was the specific location of the job a major consideration, a minor consideration, or not a consideration at all in your decision to take your present job?

Major consideration	105	} (ASK Q.4a. and 4b.)
Minor consideration	98	
Not a consideration	73	(SKIP TO Q.5)

4a. In what way or ways was location a consideration in your decision to take your present job? (DO NOT READ LIST. CHECK EACH REASON RESPONDENT MENTIONS) PROBE: In what other ways was location a consideration for you?

4b. Of the reasons you mentioned, which one was the most important to you? (CIRCLE ONE REASON MENTIONED AS MOST IMPORTANT)

<u>JOB LOCATION</u>	
<u>5</u>	Job was in California
<u>32</u>	Job was in Bay Area
<u>33</u>	Job was close to home
<u>38</u>	Job was in a downtown location
<u>5</u>	Job was away from a downtown location
<u>4</u>	Job was near shopping centers
<u>3</u>	Job was in a safe area
<u>TRANSPORTATION ACCESS</u>	
<u>16</u>	Job was near a BART station (SPECIFIC MENTION)
<u>30</u>	Job was easy to get to by BART (SPECIFIC MENTION)
<u>70</u>	Job was easy to get to by public transportation (PROBE FOR TYPE, CODE HERE FOR SYSTEMS OTHER THAN BART)

(CARD 2 COL. 1-2, DUP COLS. 2-9)

<u>2</u>	Job was easy to get to by car
<u>7</u>	Car parking was available near the job
<u>6</u>	Could walk to job

<u>TRAVEL TIME</u>	
<u>9</u>	Job was no more than 15 minutes from home
<u>20</u>	Job was no more than 30 minutes from home
<u>0</u>	Job was no more than 45 minutes from home
<u>1</u>	Job was no more than 60 minutes from home

<u>TRAVEL DISTANCE</u>	
<u>4</u>	Job was no more than 15 miles from home
<u>3</u>	Job was no more than 30 miles from home
<u>0</u>	Job was no more than 45 miles from home
<u>0</u>	Job was no more than 60 miles from home

<u>OTHERS</u>		
<u>2</u>	Could travel to or from work with friends/Relatives	<u>18</u>
<u>13</u>	Other _____ (SPECIFY)	<u>0</u>
<u>10</u>	See codebook _____	
<u>6</u>	_____	

5. How much of a consideration was access or nearness to any of the Bay Area public transportation systems in your decision to take your present job? Was it (READ LIST AND RECORD BELOW)?

A major consideration,	125	} (ASK Q.6)
A minor consideration, or	77	
Not a consideration at all	74	(SKIP TO Q.7)

6. Which Bay Area public transportation systems would that be?

Easy to reach from/Near a San Francisco MUNI stop	63
Easy to reach from/Near an AC Transit bus stop	83
Easy to reach from/Near a BART station	120
Easy to reach from/Near a jitney stop	4
Easy to reach from/Near a Samtrans (formerly Greyhound) stop	3
Easy to reach from/Near a Peerless Stages stop	0
Other _____	5
(SPECIFY)	

0
0

7. Specifically, was the job being near a BART station a major consideration, a minor consideration, or not a consideration at all in your decision to take your present job?

A major consideration	52
A minor consideration	66
Not a consideration at all	158

8. When you were looking for your present job, did you look for work in any areas with the idea that you would use BART for your daily commute there?

Yes	82 (GO ON TO Q.9)
No	194 (SKIP TO Q.10a.)

9. Did you look for work in any areas which you would not have considered except for the fact that you could commute there by BART?

Yes	31
No	51

10a. Again thinking back to the time you were looking for your present job and went out interviewing, what kinds of transportation can you remember using to get to job interviews? PROBE: What others? PROBE: Any others? (RECORD BELOW UNDER "FORMS USED AT ALL")

- 10b. Thinking about all those job interviews in total, what one kind of transportation did you use most to travel to them?

	Q.10a Forms Used At All	Q.10b One Form Used Most
AC Transit	82	37
San Francisco MUNI	76	50
BART	97	47
Golden Gate Transit	2	0
Southern Pacific Railway	1	0
Samtrans (formerly Greyhound)	2	0
Jitney	1	0
Private Auto, Truck, Van	122	87
Car-pool (3 or more in car)	18	13
Walk	45	20
Motorcycle	6	4
Bicycle	4	2
Taxi	4	0
Other <u>Airline, ferry, etc.</u>	15	9
(SPECIFY)		
Don't remember	3	3

11. Now, I'd like to talk about your previous permanent job, the one you had just before you got the one you have now. I don't need to know the specific address, but would you tell me the name of the city where your previous permanent job was located, and the nearest cross streets to that job?

60 _____

No previous permanent job () 61 _____

City _____ State _____ 62 _____

Cross Street _____ and _____ 63 _____

(IF NO PREVIOUS PERMANENT JOB OR PREVIOUS PERMANENT JOB WAS OUTSIDE THE ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO OR MARIN COUNTIES AREA, SKIP TO Q.29, OTHERWISE ASK Q.12)

12. What kind of transportation did you usually use to get to and from that job? (NOTE: IF ANY PUBLIC TRANSPORTATION MENTIONED, PROBE FOR HOW RESPONDENT GETS TO IT) (RECORD BELOW. IF MORE THAN ONE FORM OF TRANSPORTATION MENTIONED, ASK:) Which kind of transportation did you use for the longest (distance) part of the trip?

	Used For Longest Part Of Trip	Used For Rest Of Trip
AC Transit	31	6
San Francisco MUNI	31	6
BART	32	6
Golden Gate Transit	2	0
Southern Pacific Railway	0	0
Samtrans (formerly Greyhound)	0	1
Jitney	0	1
Private Auto, Truck, Van	46	13
Car-pool (3 or more in car)	3	3
Walk	18	63
Motorcycle	0	0
Bicycle	1	1
Taxi	0	0
Other <u>Airline, ferry, etc.</u>	3	1
(SPECIFY)		
Don't remember	0	0
Go one way/return another	2	70

SKIP TO Q.29

13. First, I'd like you to think back to the time when your (current) employer most recently changed the location of his business. At that time, did you give any thought whatsoever to looking for another job because of the change in the location of the business?

Yes 7 (ASK Q.14)

No 47 (SKIP TO Q.27)

Refused 260

14. Why did the change in location make you consider looking for another job? (RECORD BELOW) PROBE: Were there any other reasons? Which was the most important consideration? (UNDERLINE MOST IMPORTANT)

1
1
1
2
2
0
0
0
0
0
1
0

15. Did you actually interview for any other jobs at that time?

Yes 2 (ASK Q.16)

No 5 (SKIP TO Q.27)

16. Did you limit your job search to the same local area that you had been working in?

Yes 1 (ASK Q.17)

No 1 (SKIP TO Q.21)

- 17a. Why? What was important to you about the particular location? (DO NOT READ LIST. CHECK EACH REASON RESPONDENT MENTIONS) PROBE: What else was important to you about that particular location?

17b. Which one reason was the most important to you? (CIRCLE ONE REASON MENTIONED)

<u>JOB LOCATION</u>		
<u>0</u>	Job was in California	
<u>1</u>	Job was in Bay Area	
<u>0</u>	Job was close to home	
<u>0</u>	Job was in a downtown location	
<u>0</u>	Job was away from a downtown location	
<u>0</u>	Job was near shopping centers	
<u>0</u>	Job was in a safe area	
<u>TRANSPORTATION ACCESS</u>		
<u>0</u>	Job was near a BART station (SPECIFIC MENTION)	
<u>0</u>	Job was easy to get to by BART (SPECIFIC MENTION)	
<u>0</u>	Job was easy to get to by public transportation	
	(PROBE FOR TYPE, CODE HERE FOR SYSTEMS OTHER THAN BART)	
<u>0</u>	Job was easy to get to by car	
<u>0</u>	Car parking was available near the job	
<u>0</u>	Could walk to job	
<u>TRAVEL TIME</u>		
<u>0</u>	Job was no more than 15 minutes from home	
<u>0</u>	Job was no more than 30 minutes from home	
<u>0</u>	Job was no more than 45 minutes from home	
<u>0</u>	Job was no more than 60 minutes from home	
<u>TRAVEL DISTANCE</u>		
<u>0</u>	Job was no more than 15 miles from home	
<u>0</u>	Job was no more than 30 miles from home	
<u>0</u>	Job was no more than 45 miles from home	
<u>0</u>	Job was no more than 60 miles from home	
<u>OTHERS</u>		
<u>0</u>	Could travel to or from work with friends/Relatives	<u>0</u>
<u>0</u>	Other _____	<u>0</u>
	(SPECIFY)	
<u>1</u>	_____	<u>0</u>
<u>1</u>	_____	<u>0</u>
		<u>1</u>

18. How much of a consideration was access or nearness to any of the Bay Area public transportation systems in your desire to stay in that same local area? Was it:
(READ LIST AND RECORD BELOW)

A major consideration,	0	} (ASK Q.19)
A minor consideration, or	1	
Not a consideration at all	0	(SKIP TO Q.20)

19. Which Bay Area public transportation systems would that be?

Easy to reach from/Near a San Francisco MUNI stop	1
Easy to reach from/Near an AC Transit bus stop	0
Easy to reach from/Near a BART station	1
Easy to reach from/Near a jitney stop	0
Easy to reach from/Near a Samtrans (formerly Greyhound) stop	0
Easy to reach from/Near a Peerless Stages stop	0
Other _____	0
(SPECIFY)	

0

20. Specifically, was having a BART station in the area a major consideration, a minor consideration, or not a consideration at all in your desire to stay in that same local area?

A major consideration,	0	}	(SKIP TO Q.26a)
A minor consideration, or	0		
Not a consideration at all	1		

21. How much of a consideration was access or nearness to any of the Bay Area public transportation systems in your desire to look for work in the areas where you did? Was it: (READ LIST AND RECORD BELOW)

A major consideration,	0	}	(ASK Q.22)
A minor consideration, or	0		
Not a consideration at all	1	(SKIP TO Q.23)	

22. Which Bay Area public transportation systems would that be?

Easy to reach from/Near a San Francisco MUNI stop	0
Easy to reach from/Near an AC Transit bus stop	0
Easy to reach from/Near a BART station	0
Easy to reach from/Near a jitney stop	0
Easy to reach from/Near a Samtrans (formerly Greyhound) stop	0
Easy to reach from/Near a Peerless Stages stop	0
Other _____	0
(SPECIFY)	

23. Specifically, was having a BART station in the area a major consideration, a minor consideration, or not a consideration at all in your desire to look for work in the areas where you did?

A major consideration	0
A minor consideration	0
Not a consideration at all	1

24. When you were considering changing jobs, did you look for work in any areas with the idea that you would use BART for your daily commute there?

Yes 1 (GO ON TO Q.25)
No 0 (SKIP TO Q.26a)

25. Did you look for work in any areas which you would not have considered except for the fact that you could commute there by BART?

Yes 1
No 0

- 26a. Again, thinking of this time when you were considering changing jobs and went out interviewing, what kinds of transportation can you remember using to get to job interviews? PROBE: What others? PROBE: Any others? (RECORD BELOW UNDER "FORMS USED AT ALL")

- 26b. Thinking about all those job interviews in total, what one kind of transportation did you use most to travel to them?

	Q.26a Forms Used At All	Q.26b One Form Used Most
AC Transit	0	0
San Francisco MUNI	0	0
BART	0	0
Golden Gate Transit	0	0
Southern Pacific Railway	0	0
Samtrans (formerly Greyhound)	0	0
Jitney	0	0
Private Auto, Truck, Van	1	1
Car-pool (3 or more in car)	0	0
Walk	0	0
Motorcycle	1	1
Bicycle	0	0
Taxi	0	0
Other _____ (SPECIFY)	0	0
Don't remember		

27. Now, I'd like to talk about your previous job location, the one you worked in before your employer moved. I don't need to know the specific address, but would you tell me the name of the city where your employer's previous place of business was located, and the nearest cross streets to that place?

City _____ State _____ 27 _____

Cross Streets _____ and _____ 28 _____

(IF PREVIOUS BUSINESS PLACE WAS OUTSIDE THE ALAMEDA, CONTRA COSTA, SAN FRANCISCO, SAN MATEO, OR MARIN COUNTIES AREA, SKIP TO Q.29, OTHERWISE ASK Q.28) 29 _____
30 _____

28. What kind of transportation did you usually use to get to and from that location?
 (NOTE: IF ANY PUBLIC TRANSPORTATION MENTIONED, PROBE FOR HOW RESPONDENT GOT TO IT)
 (RECORD BELOW, IF MORE THAN ONE FORM OF TRANSPORTATION MENTIONED, ASK:) Which
 kind of transportation did you use for the longest (distance) part of the trip?

	Used For Longest Part Of Trip	Used For Rest Of Trip
AC Transit	6	2
San Francisco MUNI	17	1
BART	10	1
Golden Gate Transit	2	0
Southern Pacific Railway	0	0
Samtrans (formerly Greyhound)	0	0
Jitney	0	1
Private Auto, Truck, Van	7	7
Car-pool (3 or more in car)	4	1
Walk	1	22
Motorcycle	0	0
Bicycle	1	0
Taxi	0	0
Other _____	0	0
(SPECIFY)		
Don't remember	0	0

Use no other mode 14

0
0
0
0

29. Now, I'd like to talk a bit about the public transportation systems in the Bay Area. Which of the following kinds of public transportation are within easy walking distance of your home; that is, within 10 minutes or so walking time? (READ LIST. RECORD BELOW, THEN ASK:) And which of the following kinds of public transportation are within easy walking distance of your job? (READ LIST AND RECORD BELOW)

	Within Walking Distance Of Home	Within Walking Distance of Job
AC Transit	187	240
San Francisco MUNI	93	171
BART	97	256
Samtrans (formerly Greyhound)	30	72
Jitney	44	108
Peerless Stages	1	25

30. (FOR EACH TYPE OF TRANSPORTATION NOT WITHIN WALKING DISTANCE OF HOME, ASK:) Some people drive in cars to public transportation, park or are dropped off, and then complete their trip to work by public transportation. Which of the following kinds of public transportation are within 10 minutes or so driving time of your home? (READ LIST)

	Within 10 Minutes Driving Time	
	Yes	No
AC Transit	53	74
San Francisco MUNI	13	208
BART	194	23
Samtrans (formerly Greyhound)	55	229
Jitney	33	237
Peerless Stages	20	293

31. (FOR EACH ONE ANSWERED "YES" IN Q.30, ASK:) How easy would it be for you to drive to and park, or be dropped off at (TRANSPORTATION), and then take it to work? Would you say very easy, moderately easy, moderately difficult, or very difficult?

	Very Easy	Moderately Easy	Moderately Difficult	Very Difficult
AC Transit	11	7	7	28
BART	114	30	16	34
San Francisco MUNI	4	4	2	3
Samtrans (formerly Greyhound)	11	8	3	33
Peerless Stages	4	1	2	13
Jitney	5	9	3	16

- 32a. When we spoke to you previously, you mentioned that you use (TRANSPORTATION ENTERED IN BOX) to get to and from your current job? Why do you use (TRANSPORTATION) to get to work? (DO NOT READ LIST. CHECK EACH REASON RESPONDENT MENTIONS) PROBE: What other reasons are there? PROBE: Any others?

- 32b. Which one reason is the most important to you? (CIRCLE ONE MOST IMPORTANT)

REASONS

- 121 Easiest to get to from home/Convenient to home
- 106 Takes me closest to my job/Convenient to job
- 5 Easy to transfer to other public transportation to complete trip
- 41 Only kind of transportation available
- 14 Don't have to transfer
- 36 Best schedule, runs most often
- 19 Don't like other ways of getting there
- 114 Fastest/Shortest travel time/Quick
- 97 Cheapest
- 39 Most comfortable

11 Safest/Not as concerned about personal safety, mugging, etc.

26 It's dependable

13 It's not crowded/There's seating

13 Like to walk/Enjoy the exercise

67 No problem with driving and parking

5 Prefer it (NO SPECIAL REASON) (PROBE FOR MORE SPECIFIC REASONS)

30 Other _____
(SPECIFY)

10 _____

(CARD 5 COL. 1-5, DUP. COLS. 2-9)

BART Mentioned At All
In Screening Q.5

Yes _____ No _____

(IF BART MENTIONED IN Q.29 OR "YES" IN Q.30 AND NOT MENTIONED IN SCREENING Q.5,
ASK Q.33. OTHERWISE SKIP TO Q.34)

33a. You mentioned that it might be possible for you to use BART for all or part of your trip to work. Why is it that you don't use it? (RECORD BELOW. PROBE FOR ADDITIONAL REASONS)

33b. Which of the things you mentioned is your most important reason for not using BART? (CIRCLE ONE REASON MENTIONED)

- 57 Hard to get to from my home
- 17 Doesn't take me close enough to my job
- 15 Have to transfer
- 19 Poor schedule, doesn't run often enough
- 31 Takes too long to get there
- 33 Too expensive
- 2 Not comfortable
- 3 Not safe, concerned for personal safety
- 12 It's not dependable
- 9 It's crowded, no seating, have to stand
- 2 I can't do anything else while I'm traveling
- 2 Dislike it (general) (PROBE FOR MORE SPECIFIC REASON)
- 9 Other _____
(SPECIFY)
- 9 _____

Moved In Past 2
Years?

Screening Q.4b.
Yes _____ No _____

34. (ASK ALL RESPONDENTS WHO HAVE MOVED IN THE PAST 1 OR 2 YEARS [Screening Q.4b], OTHERWISE SKIP TO Q.39) When we talked to you previously, you mentioned that you have moved within the past (ONE)7(TWO)years. Before you moved, did you live in the Bay Area, or did you live somewhere else?

Lived in Bay Area 135 (ASK Q.35)

Lived somewhere else 52 (SKIP TO Q.39)

35. What county did you live in? (IF SAN FRANCISCO, ASK:) Was that in the Sunset District, the Richmond District or somewhere else in San Francisco?

Alameda County	52	}	(ASK Q.36)
Contra Costa County	13		
San Francisco except Sunset or Richmond	44		
Sunset or Richmond	9	(SKIP TO Q.37a)	
Other Bay Area County	17	(ASK Q.36)	

36. I don't need to know the specific address, but would you tell me the name of the city where you lived and the nearest cross streets to where your home was located?

City _____

Cross Streets _____ and _____

- 37a. Why did you decide to move from your previous address? (DO NOT READ LIST. CHECK EACH REASON RESPONDENT MENTIONS.) PROBE: What other reasons were there?

- 37b. What one thing was the most important reason for your decision to move? (CIRCLE MOST IMPORTANT REASON.)

HOUSING NEEDS

<u>20</u>	Change in family composition (got married, divorced, separated, widowed, had addition to family, etc.)
<u>6</u>	Moved in with friend(s)
<u>16</u>	Bought a home
<u>16</u>	Wanted own place
<u>31</u>	Wanted larger/Smaller/Different space
<u>18</u>	Better housing
<u>16</u>	Lower rent

LOCATION

<u>29</u>	Preferred present location/Disliked old neighborhood
<u>1</u>	Convenient to shopping
<u>2</u>	Friends in area

JOB REASONS

<u>1</u>	Couldn't get a job near old location
<u>4</u>	Changed jobs

COMMUTE REASONS

<u>10</u>	To make it easier to get to work/Shorter trip to work	
<u>3</u>	To make it faster to get to work	
<u>2</u>	To make it cheaper to get to work	
<u>3</u>	So could use public transit to get to work (PROBE FOR TYPE)(CODE HERE	FOR SYSTEMS
<u>3</u>	So could use BART to get to work(SPECIFIC MENTION)	OTHER THAN BART)

OTHERS

<u>0</u>	Got a raise, could afford it	
<u>7</u>	Climate	
<u>0</u>	To have better access to highways, to be able to get out of town easier	<u>8</u>
		<u>0</u>
<u>14</u>	Other _____	
	(SPECIFY)	
<u>4</u>	_____	

38. How much of a consideration was the availability of BART in your decision about where to move to? Was it: (READ CATEGORIES)

A major consideration,	26
A minor consideration, or	28
Not a consideration at all	80

I have just a few more background questions.

39. Do you own your home or rent?

Own	96
Rent	203
Don't Know/No Answer	15

40. Do you own or have regular access to the use of a _____? (READ LIST AND CHECK EACH TYPE OF VEHICLE OWNED OR ACCESSIBLE)

	<u>Yes</u>	<u>No</u>
Car	232	75
Truck or van	34	273
Motorcycle or motorbike	32	275
Bicycle	149	158
None (DO NOT READ)	7	

41. Which of the following categories describes your current marital status? (READ LIST AND RECORD BELOW) Which describes your marital status 12 months ago?

	<u>Now</u>	<u>12 Months Ago</u>
Married	110	100
Separated	8	5
Widowed or divorced	33	32
Never married	160	174
Refused (DO NOT READ)	3	3

42. Including yourself, how many people live in your household at the present time? How many were there in your household 12 months ago?

	<u>Now</u>	<u>12 Months Ago</u>
One	60	59
Two	108	97
Three	57	30
Four	50	46
Five	15	22
Six	7	12
Seven	9	8
Eight	2	2
Nine or more	2	2
Refused	4	6

43. How many of the people in your household are currently employed half-time or more? How many were employed half-time or more 12 months ago?

	<u>Nov</u>	<u>12 Months Ago</u>
One	121	119
Two	131	123
Three	31	37
Four	21	13
Five	5	3
Six	5	0
Seven	0	0
Eight	0	1
Nine or more	0	0
Refused	4	7
None		11

44. Which of these categories best describes the composition of your household?
(READ CATEGORIES AND CHECK ONE WHICH BEST DESCRIBES RESPONDENT'S HOUSEHOLD.)

Single family with a husband and a wife and with or without children or relatives	132
Single parent household, one adult and at least one child	27
Single adult	60
Two or more unrelated adults	68
Two or more unrelated adults with at least one child	10
Some other arrangement (SPECIFY) _____	1
<hr/>	
Refused (DO NOT READ)	4
	9
	3 other

45. Are you the major wage earner in your household or is another household member?

Respondent is major wage earner	162
Other family member is major wage earner	70
Other _____ (SPECIFY)	81

- 46a. In 1976, was your total household income above or below \$15,000, before taxes?
Please tell me when I reach the category which includes your total annual family income. (BEGIN READING CATEGORIES ABOVE OR BELOW \$15,000.)

46b. And which category includes your total household income in 1975? (REPEAT CATEGORIES)

	<u>1976</u>	<u>1975</u>
None or less (DO NOT READ)	2	7
Under \$5,000	31	41
\$5,000 to less than \$7,000	38	31
\$7,000 to less than \$10,000	30	41
\$10,000 to less than \$15,000	48	48
<hr/>		
\$15,000 to less than \$20,000	48	47
\$20,000 to less than \$25,000	39	30
\$25,000 to less than \$50,000	44	29
\$50,000 or more	7	4
Refused, No Answer (DO NOT READ)	27	36

47. Which of the following categories includes the last grade of school that you completed?

No formal schooling	1
Up to 8th grade	4
9th through 11th grade	10
High school graduate	36
Trade or vocational school	16
One year of college	31
Two or three years of college (including junior college)	78
College graduate	69
One year or more of graduate school	69
Refused (DO NOT READ)	0

48. What is your occupation? And in what industry do you work?

OCCUPATION _____

INDUSTRY _____ 18 _____

49. Which of the following categories includes your age? (READ LIST)

Under 19	25
20 to 24	77
25 to 29	84
30 to 34	54
35 to 39	27
40 to 44	11
45 to 49	15
50 to 54	8
55 to 59	7
60 to 64	3
65 to 69	2
70 and over	0
Refused(DO NOT READ)	1

Those are all the questions I have. Thank you very much for participating in this survey. The study is being conducted for the Metropolitan Transportation Commission in an effort to understand the effects of public transportation services on the communities they serve. The results of this study will aid in planning for better service in this and other communities throughout the country. Your help is appreciated in this effort.

INTERVIEWER'S NAME _____

DATE _____

TIME COMPLETED _____

APPENDIX B. MTC WORKPLACE/TRANSPORTATION SURVEY

METROPOLITAN TRANSPORTATION COMMISSION TRANSPORTATION SURVEY

The questions in this booklet are part of a survey being conducted by the Metropolitan Transportation Commission to help them plan better transportation facilities in the Bay Area. The survey is being sponsored by the U.S. Department of Transportation and the U.S. Department of Housing and Urban Development.

This survey is authorized by the U.S. Department of Transportation Act (P.L. 89-670, Sec. 4(2)). Your cooperation is needed to make the results of the survey comprehensive, accurate, and timely, although you are not required to respond. Neither your name nor that of your employer will be used in the survey. Only totals and averages for large groups of people will be reported. *If some questions don't seem to apply to your situation, or if you don't know the answer to a question, please write in an explanation.*

Location of place
where you work: _____
Number and street, or intersection *City* *Zip*

What kind of work do you do? _____
(For example: TV repairman, spray painter, civil engineer)

What is your job title? _____

How long have you been working at this particular location? . . . ____ YEARS AND ____ MONTHS

Circle which days of the week you
usually work at this location MON TUES WED THURS FRI SAT SUN

On a typical work day, what are your work hours here? ____ AM TO ____ AM
PM PM

How important is it to you that your method of transportation
to work never causes you to be more than ten minutes late? ☐ VERY IMPORTANT
☐ SOMEWHAT IMPORTANT
☐ NOT IMPORTANT

Do you usually travel to work directly from your residence? ☐ YES
☐ NO

We don't need your exact address,
but we do need the following in-
formation about where you live: . . . CITY _____ STREET _____
NEAREST INTER-
SECTING STREET _____ ZIP _____

How long have you lived there? ____ YEARS AND ____ MONTHS

Do you own or rent your home? ☐ OWN
☐ RENT

Where did you live before you
moved to your present residence? _____
City *County* *State*

Did you own or rent there? ☐ OWN
☐ RENT

Each of the next four pages is about a method of transportation some people use to get to work.

Please answer the questions about each one if you *use* the method, or if it would be *possible* for
you to use the method as a substitute for your normal means of transportation.

Is it possible for you to get to work

by **WALKING** or riding a bicycle all the way?

- ☐ YES, WALKING
☐ YES, RIDING A BIKE
☐ NO, NEITHER ONE

IF YOU CHECKED ONE OF THE "YES" BOXES, PLEASE ANSWER THE REST OF THE QUESTIONS ON THIS PAGE.

IF YOU CHECKED THE "NO" BOX PLEASE SKIP TO THE NEXT PAGE.



How many minutes would it usually take
for the entire door-to-door trip to work? _____ MINUTES

Write in the number of days you actually use
this method to get to work in a typical week _____

Given below are some factors which people consider in choosing
their method of transportation. Listed beside each factor is a
scale of scores from 1 to 7.

If you are very *satisfied* with a factor for this method of trans-
portation you should circle 7. If you are very dissatisfied with
a factor, you should circle 1. If you feel a factor is so-so circle 4,
and so on along the scale.

	VERY SATIS- FIED				VERY DISSATIS- FIED		
YOUR WALKING TIME DURING THE TRIP	7	6	5	4	3	2	1
DEPENDABILITY OF ARRIVING ON TIME	7	6	5	4	3	2	1
SECURITY FROM CRIME AND UNPLEASANT BEHAVIOR OF OTHERS .	7	6	5	4	3	2	1
ABILITY TO DO WHAT YOU WANT WHILE TRAVELING	7	6	5	4	3	2	1
FLEXIBILITY TO TRAVEL WHEN YOU WANT TO	7	6	5	4	3	2	1
YOUR TOTAL DOOR-TO-DOOR TRAVEL TIME.	7	6	5	4	3	2	1

PLEASE CONTINUE AT TOP OF NEXT PAGE

Is it possible for you to travel to work on
either BART or the Southern Pacific **TRAIN**?

- ☐ YES, ON BART
☐ YES, ON S.P. TRAIN
☐ NO, NEITHER

IF YOU CHECKED ONE OF THE "YES"
BOXES, PLEASE ANSWER THE REST
OF THE QUESTIONS ON THIS PAGE.

IF YOU CHECKED THE "NO" BOX
PLEASE SKIP TO THE NEXT PAGE.



What station would you get on? _____

What station would you get off? _____

How many minutes, including waiting time, would you usually spend going from one station to the other? _____ MINUTES

How would you get to the train station on your way to work? ☐ WALK
☐ BUS
☐ AUTOMOBILE
☐ OTHER _____

How many minutes, including waiting time, would it take you to get to the station? _____ MINUTES

If by automobile: How many miles is it, one way? _____ MILES

Please check how you would get from the station
where you get off to the place where you work ☐ WALK
☐ BUS
☐ OTHER _____

How many minutes, including waiting time, would it take to get from the station to work? _____ MINUTES

Adding it all together, how many minutes would it usually take for the entire door-to-door trip? _____ MINUTES

What is the fastest time you would expect? _____ MINUTES

What is the slowest time you would expect? _____ MINUTES

How many different vehicles and trains are used in the entire door-to-door trip from home to work? _____
(Include transfers in counting the number.)

How much is the daily round-trip cost for transit fares? \$ _____

Write in the number of days you actually use this method to get to work in a typical week _____

Given below are some factors which people consider in choosing their method of
transportation. Listed beside each factor is a scale of scores from 1 to 7.

If you are very *satisfied* with a factor for this method of transportation you should
circle 7. If you are very dissatisfied with a factor, you should circle 1. If you feel a
factor is so-so circle 4, and so on along the scale.

	VERY SATIS- FIED				VERY DISSATIS- FIED			
TOTAL COST OF YOUR TRIP	7	6	5	4	3	2	1	
YOUR WALKING TIME DURING THE TRIP	7	6	5	4	3	2	1	
DEPENDABILITY OF ARRIVING ON TIME	7	6	5	4	3	2	1	
YOUR CHANCES OF GETTING A SEAT	7	6	5	4	3	2	1	
SECURITY FROM CRIME AND UNPLEASANT BEHAVIOR OF OTHERS	7	6	5	4	3	2	1	
ABILITY TO DO WHAT YOU WANT WHILE TRAVELING	7	6	5	4	3	2	1	
FLEXIBILITY TO TRAVEL WHEN YOU WANT TO	7	6	5	4	3	2	1	
YOUR TOTAL DOOR-TO-DOOR TRAVEL TIME	7	6	5	4	3	2	1	

PLEASE CONTINUE AT TOP OF NEXT PAGE

Is it possible for you to use a **BUS**, streetcar, ferry boat or taxi
as the main method of transportation to work?

- ☐ YES, BUS
☐ YES, STREETCAR
☐ YES, FERRY BOAT
☐ YES, TAXI
☐ NO, NONE OF THEM

IF YOU CHECKED ANY OF THE "YES"
BOXES, PLEASE ANSWER THE REST
OF THE QUESTIONS ON THIS PAGE.

IF YOU CHECKED THE "NO" BOX
PLEASE SKIP TO THE NEXT PAGE.

If you were to ride the bus or streetcar, please check which line you would ride .

- ☐ A.C. TRANSIT
☐ GOLDEN GATE TRANSIT
☐ GREYHOUND
☐ S.F. MUNI
☐ OTHER _____

Please indicate how many minutes, including waiting time, this part of the
trip would usually take on your way to work

_____ MINUTES

Please check how you would get to the method of transportation checked
above on your way to work

- ☐ WALK
☐ BUS
☐ AUTOMOBILE
☐ OTHER _____

How many minutes, including waiting time, would this part of the trip usually take?

_____ MINUTES

If by automobile: How many miles is it, one way?

_____ MILES

How would you get from that method of transportation
to the place where you work

- ☐ WALK
☐ BUS
☐ OTHER _____

How many minutes, including waiting time, would this part of the trip usually take?

_____ MINUTES

Adding it all together, how many minutes would it usually take for the entire door-to-door trip?

_____ MINUTES

What is the fastest time you would expect?

_____ MINUTES

What is the slowest time you would expect?

_____ MINUTES

How many different vehicles are used in the entire door-to-door trip from home to work?

(Include transfers in counting the number.)

How much is the daily round trip cost for transit fares?

\$ _____

Write in the number of days you actually use this method to get to work in a typical week

Given below are some factors which people consider in choosing their methods of
transportation. Listed beside each factor is a scale of scores from 1 to 7.

If you are very *satisfied* with a factor for this method of transportation you should
circle 7. If you are very dissatisfied with a factor, you should circle 1. If you feel a
factor is so-so circle 4, and so on along the scale.

	VERY SATIS- FIED					VERY DISSATIS- FIED		
TOTAL COST OF YOUR TRIP	7	6	5	4	3	2	1	
YOUR WALKING TIME DURING THE TRIP	7	6	5	4	3	2	1	
DEPENDABILITY OF ARRIVING ON TIME	7	6	5	4	3	2	1	
YOUR CHANCES OF GETTING A SEAT	7	6	5	4	3	2	1	
SECURITY FROM CRIME AND UNPLEASANT BEHAVIOR OF OTHERS	7	6	5	4	3	2	1	
ABILITY TO DO WHAT YOU WANT WHILE TRAVELING	7	6	5	4	3	2	1	
FLEXIBILITY TO TRAVEL WHEN YOU WANT TO	7	6	5	4	3	2	1	
YOUR TOTAL DOOR-TO-DOOR TRAVEL TIME	7	6	5	4	3	2	1	

PLEASE CONTINUE AT TOP OF NEXT PAGE

Is it possible for you to travel to

work by **AUTOMOBILE**, truck or motorcycle?

- ☐ YES, BY AUTOMOBILE
☐ YES, BY TRUCK
☐ YES, BY MOTORCYCLE
☐ NO, NONE OF THEM

IF YOU CHECKED ANY OF THE "YES"
BOXES, PLEASE ANSWER THE REST
OF THE QUESTIONS ON THIS PAGE.

IF YOU CHECKED THE "NO" BOX
PLEASE SKIP TO THE NEXT PAGE.



How many miles is it from your home
to the place where you work (one way)? _____ MILES

How many minutes would it usually take for the
entire door-to-door trip from home to work? _____ MINUTES

What is the fastest time you would expect? _____ MINUTES

What is the slowest time you would expect? _____ MINUTES

How much would the daily round trip cost for— Bridge tolls \$ _____

Parking fees \$ _____

Write in the number of days you actually use
this method to get to work in a typical week _____

IF YOU EVER GO TO WORK BY THIS METHOD:

Do you drive alone or with a family member or do you ride in a carpool? ☐ ALONE OR WITH
FAMILY MEMBER
☐ IN A CARPOOL

How many people, including yourself, usually ride in the vehicle? _____

Given below are some factors which people consider in choosing their method of
transportation. Listed beside each factor is a scale of scores from 1 to 7.

If you are very *satisfied* with a factor for this method of transportation you
should circle 7. If you are very dissatisfied with a factor, you should circle 1.
If you feel a factor is so-so circle 4, and so on along the scale.

	VERY SATIS- FIED				VERY DISSATIS- FIED			
TOTAL COST OF YOUR TRIP	7	6	5	4	3	2	1	
YOUR WALKING TIME DURING THE TRIP	7	6	5	4	3	2	1	
DEPENDABILITY OF ARRIVING ON TIME	7	6	5	4	3	2	1	
SECURITY FROM CRIME AND UNPLEASANT BEHAVIOR OF OTHERS	7	6	5	4	3	2	1	
ABILITY TO DO WHAT YOU WANT WHILE TRAVELING . . .	7	6	5	4	3	2	1	
FLEXIBILITY TO TRAVEL WHEN YOU WANT TO	7	6	5	4	3	2	1	
YOUR TOTAL DOOR-TO-DOOR TRAVEL TIME	7	6	5	4	3	2	1	

PLEASE CONTINUE AT TOP OF NEXT PAGE

which one method of getting to work would be your second choice, if your usual method were not available?

Please write in the most important reasons why your second choice method is not the one you usually use.
Write the most important reason first.

Do you drive an automobile or other motor vehicle? ☐ YES ☐ NO

IF YES: Do you usually need a car for your work? ☐ YES ☐ NO

IF YOU CAN DRIVE BUT USUALLY DON'T DRIVE TO WORK:

How easy would it be for you to obtain an automobile to drive to work? ☐ VERY EASY
☐ A LITTLE DIFFICULT
☐ VERY DIFFICULT

Do you have any physical disability that has lasted six months or more, which limits or prevents your getting to or using any of the transportation methods listed on the preceding page? ☐ YES ☐ NO

IF YOU DO: Please tell which methods of transportation are affected, and explain. _____

What reasons led to your decision to accept your present job? ☐ No choice, needed a job and this was the first one available.
☐ Transferred
☐ Other job-related reasons (better job, better pay, interesting work)
☐ Wanted to move to the Bay Area
☐ Convenient to home; shorter commute
☐ Wanted downtown location (convenient to shopping and other activities)
☐ Convenient to public transportation
☐ Other (specify) _____

CHECK THE BOXES NEXT TO THE REASONS THAT LED TO YOUR DECISION, THEN CIRCLE THE MOST IMPORTANT ONE.

PLEASE CONTINUE WITH THE QUESTIONS ON THE BACK PAGE

WE WOULD LIKE SOME FURTHER INFORMATION ABOUT YOU TO HELP US ANALYZE THE SURVEY. AS YOUR NAME DOES NOT APPEAR ON THIS QUESTIONNAIRE, YOU CAN BE ASSURED OF ANONYMITY.

What is your sex? ☐ MALE ☐ FEMALE

	<u>NOW</u>	<u>12 MONTHS AGO</u>
Including yourself, how many people live in your household? . . .	_____	_____
How many of these are employed half time or more? . . .	_____	_____
How many of these are age 16 or older?	_____	
How many automobiles, including pick-up trucks, are available for use by members of your household?	_____	

How much school have you completed? ☐ LESS THAN HIGH SCHOOL GRADUATE ☐ SOME COLLEGE
☐ GRADUATED FROM HIGH SCHOOL ☐ 4-YEAR COLLEGE GRAD.
☐ MORE THAN 4 YEARS OF COLLEGE

What is your age? _____

What is the range of your total annual family income? ☐ UNDER \$5,000 ☐ \$15,000-\$19,999
(before taxes) ☐ \$5,000-\$6,999 ☐ \$20,000-\$24,999
☐ \$7,000-\$9,999 ☐ \$25,000-\$49,999
☐ \$10,000-\$14,999 ☐ \$50,000 OR MORE

CHECK THE APPROPRIATE BOX ABOVE, THEN
DRAW A CIRCLE AROUND THE INCOME
CATEGORY YOU WOULD HAVE CHECKED
12 MONTHS AGO.

Which ethnic or racial category or categories describe you the
closest? ☐ AMERICAN INDIAN OR ALASKAN NATIVE
☐ ASIAN OR PACIFIC ISLANDER
☐ BLACK
☐ SPANISH AMERICAN
☐ WHITE
☐ OTHER (SPECIFY): _____

WHEN YOU HAVE COMPLETED THIS QUESTIONNAIRE, SEAL IT IN THE ENVELOPE PROVIDED AND RETURN IT AS INSTRUCTED. THANK YOU.

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